MATHEMATICA Policy Research

REPORT

Evaluation of the Vocational Training Grant Fund in Namibia: Final Report

March 29, 2017

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Submitted to:
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ACKNOWLEDGMENTS

We greatly appreciate the support of the many people whose efforts contributed to this report. We especially thank our monitoring and evaluation colleagues at the Millennium Challenge Corporation (MCC) for their input and support throughout the evaluation: Algerlynn Gill and Emily Travis. We also appreciate the support and insights provided during the compact by Kandi Shejavali, Kofi Owusu-Tieku, and Martin Wilkinson, formerly of the Millennium Challenge Account-Namibia (MCA-N), and Mao Tjiroze, formerly at the MCC Resident County Mission in Namibia.

NORC at the University of Chicago was responsible for managing the initial data collection effort; we thank Sam Haddaway, Kareem Kysia, and Aparna Ramakrishnan at NORC for their hard work and cooperation. In Namibia, we are grateful to Survey Warehouse (SW), who collected the data under contract to NORC and Mathematica. We especially thank Lizl Stoman and Piet Stoman at SW for leading the data collection effort on the ground. We also thank the SW staff who conducted the interviews for their perseverance and patience throughout the process.

Our colleagues at Mathematica also provided valuable support for the data collection and analysis. We are especially grateful to Kristen Velyvis, who provided input on and oversight of the data collection. Elena Moroz and Anca Dumitrescu also supported the data collection effort, and Anne Hower, Divya Parthasarathy, and Kathy Shepperson worked diligently to program the survey and process the data. Larissa Campuzano carefully reviewed the draft report and provided excellent comments. We also thank Colleen Fitts for formatting the report, and Cindy George and Walt Brower for their careful editorial work.

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ACRONYMS

COSDEC	Community Skills and Development Center
ITT	Intent to treat
LCDRS	Levy collection, distribution, and reporting system
MCC	Millennium Challenge Corporation
MCA-N	Millennium Challenge Account Namibia
M&E	Monitoring and Evaluation
MRC	Multidisciplinary Research Center
NHIES	Namibia Household Income and Expenditure Survey
NQA	Namibia Qualifications Authority
NTA	Namibia Training Authority
NTF	National Training Fund
RPL	Recognition of prior learning
ToT	Treatment-on-the-treated
TP	Training provider
VTGF	Vocational Training Grant Fund

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CONTENTS

TABLES

FIGURES

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EXECUTIVE SUMMARY

To promote economic growth and reduce poverty in Namibia, the Millennium Challenge Corporation (MCC) signed a $304.5 million compact with the Government of the Republic of Namibia in 2009. The compact, which was formally completed in September 2014, included three projects: tourism, agriculture, and education. The education project sought to address the shortage of skilled workers in Namibia and the education system's limited capacity to train such workers. The vocational training activity was one of the key activities under the education project, and focused on expanding the availability, quality, and relevance of vocational education and skills training in Namibia.

The vocational training activity consisted of three subactivities: (1) grants for high-priority vocational skills programs offered by public and private training providers through the Vocational Training Grant Fund (VTGF); (2) technical assistance to establish a National Training Fund (NTF), intended to provide a sustainable source of funding for vocational training programs in Namibia; and (3) improvement and expansion of Namibia's network of Community Skills and Development Centers (COSDECs), which provide vocational training for marginalized populations—primarily out-of-school youth but also low-skilled adults. MCC contracted with Mathematica Policy Research to evaluate the vocational training activity, including all three subactivities.

In this report, we present the findings from the evaluation of the VTGF subactivity. The design for this evaluation includes a rigorous impact evaluation complemented by a qualitative implementation analysis (a type of performance evaluation). The impact evaluation focuses on the main component of the subactivity—awarding grants to training providers to provide scholarships for vocational training—and uses a random assignment design to assess the effects of these scholarships on recipients' training and labor market outcomes. The implementation analysis uses largely qualitative data to explore the implementation of the subactivity, including the scholarship component. The findings from the implementation analysis are described in detail in other reports (Mamun et al. 2015 and Velyvis et al. 2016); therefore, this report focuses mainly on the findings from the impact evaluation.

A. The VTGF subactivity

The VTGF subactivity was designed to provide funding for vocational skills programs in high-priority areas while the NTF was being set up. It was also intended to serve as a pilot for future vocational training funding under the NTF, which will involve a broader, system-wide reform of the vocational training sector but has many features similar to those of the VTGF. Among the components of the VTGF subactivity, this report focuses on awarding grants to training providers. Under this component, the VTGF solicited grant applications for conducting trainings in specific high-priority skills areas. Training providers who received those VTGF grants used them to award scholarships to eligible disadvantaged applicants. The scholarships, which covered tuition and included a subsistence allowance, were intended to increase access to training for these applicants. Providers who received VTGF grants could also apply for a capacity-building grant, which they could use for purposes related to increasing their capacity (such as purchasing new tools and equipment or improving or expanding their infrastructure).

B. Research questions

The VTGF subactivity evaluation seeks to address 11 key research questions (Table ES.1); the implementation analysis was designed to address some of these questions, and the impact analysis was designed to address others. This report focuses on the questions addressed by the impact analysis.

Table ES.1. Research questions addressed by the VTGF evaluation

Analysis type	Research questions
Implementation analysis	1. Was the VTGF subactivity implemented as planned? 2. How were the VTGF grants managed? 3. What were beneficiaries' perceptions of the VTGF grants? 4. How did employers hire VTGF graduates, and what were their perceptions of the graduates? 5. Were the RPL and employer-provided training pilots implemented as planned? How did employers' perceptions of and attitudes toward their RPL-certified employees change after the employees became certified? How did employees' perceptions of employees about their job security and mobility change?
Impact analysis	6. To what extent did applicants who were offered the opportunity of training through the VTGF receive more training relative to nonfunded qualified applicants? 7. To what extent did the VTGF-funded trainees' employment outcomes improve relative to outcomes of nonfunded qualified applicants? 8. To what extent did VTGF-funded trainees have higher earnings and income relative to nonfunded qualified applicants? 9. To what extent did increased earnings result from increased wages while employed versus increased employment? 10. Did the effects of the VTGF-funded training vary by trainee characteristics? 11. What key characteristics or practices of training providers were associated with stronger impacts on employment and earnings?

RPL = Recognition of Prior Learning (piloted under the VTGF); VTGF = Vocational Training Grant Fund.

C. Impact evaluation design

The impact evaluation uses a random assignment design to answer the research questions related to the impact analysis (Table ES.1). Under this design, eligible applicants to each VTGF-funded training in which the number of applications exceeded the number of available slots were randomly assigned by the training provider either to a group that was offered a VTGF scholarship (treatment group) or to one that was not (control group). Training providers conducted random assignment separately for each VTGF-funded training after the training was funded and they had solicited applications from potential trainees. Therefore, random assignment occurred on a rolling basis from the fourth quarter of 2010 to the third quarter of 2014, as MCA-N and the NTA funded additional trainings. Most of these providers also served trainees who were funded through other sources and accommodated the additional VTGF-funded trainees in their regular training programs.

The treatment and control groups for each training are expected to be equivalent, on average, except for the offer of VTGF funding. Therefore, differences between the outcomes of the treatment and control groups at some time after the training period (which, in this evaluation, was one year after the end of training, on average) can be attributed to the VTGF funding. Our analysis approach uses a regression framework that effectively compares the outcomes of

applicants in the treatment and control groups in each training and combines the estimates across all the trainings to estimate the overall impacts of the VTGF funding.

D. Data collection

To inform the impact evaluation, we drew on two rounds of quantitative surveys with eligible applicants who were randomly assigned to VTGF trainings: a baseline survey and a follow-up survey. MCA-N and NORC (in partnership with Survey Warehouse, a local data collection firm) conducted the baseline survey from December 2011 to July 2014 using a computer-assisted telephone interview system. This timing corresponded roughly to the start of the various VTGF-funded trainings, although the baseline survey was typically conducted after each training started. We used the baseline data to confirm that the treatment and control groups were similar in demographic characteristics at baseline and to provide demographic control variables in our regression-based impact analysis to increase the statistical precision of our impact estimates.

The follow-up survey for these applicants, on which our impact estimates are based, was conducted from March 2014 to April 2016. Survey Warehouse collected these data between March and July 2014, with oversight from NORC. Mathematica took over oversight of the follow-up data collection in February 2015 (when the next cohort was due for follow-up) through the end of the follow-up survey period in April 2016. Although the plan was for the follow-up survey to occur roughly one year after the scheduled end of each training, in practice the timing varied considerably (between 6 and 28 months). However, the median was close to one year after the end of training (13 months).

The follow-up analysis sample consisted of 1,250 applicants in the treatment and control groups from 26 VTGF trainings, conducted by 10 training providers. These trainings cover about one-third of all VTGF trainings and about one-half of all VTGF-funded trainees, but are not representative of the full set of trainings or trainees. The included trainings ranged in duration from less than one month to 22 months, with a median of 8 months. The final analysis sample reflects an overall follow-up survey response rate of 69 percent (72 percent in the treatment group and 67 percent in the control group).

E. Summary of impact evaluation findings

The key findings from the impact evaluation of the VTGF subactivity focus on the impacts of the scholarship offer on applicants' participation in vocational training, employment, and earnings/income. These findings are as follows:

1. The offer of VTGF scholarships significantly increased the probability of participation in vocational training, especially for female applicants.

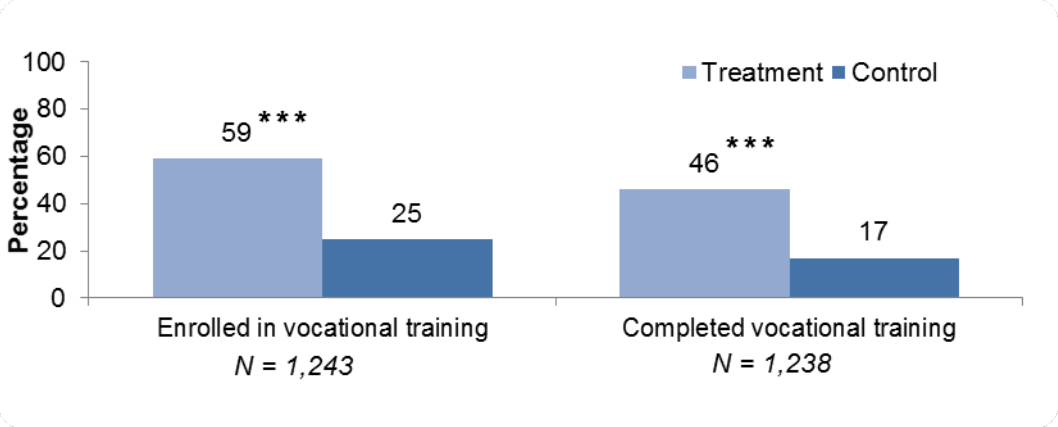
At follow-up, about 59 percent of the treatment group had enrolled in vocational training since the start of the VTGF training to which they applied compared to 25 percent of the control group, a statistically significant impact of 34 percentage points (Figure ES.1). (The start of VTGF training serves as a common reference point that can be applied to compare the outcomes of the treatment and control group in each training, even though the trainings started on different dates.) The self-reported training completion rate since the start of VTGF training was 46 percent in the treatment group compared to 17 percent in the control group, a statistically significant

impact of 29 percentage points (Figure ES.1). Impacts on both enrollment and completion were almost 50 percent larger for female applicants compared to males (not shown here).

2. The VTGF scholarship offer had no positive impact on employment at follow-up, but led to a small degree of substitution of further training for employment.

The large positive impacts of the offer of VTGF funding on training participation did not translate into positive impacts on employment at the time of the follow-up survey. About 44 percent of the treatment group held any paid job (including self-employment) at follow-up compared to 50 percent of the control group, a *negative* impact of 6 percentage points, although this difference is statistically significant only at the 10 percent level (Figure ES.2). In contrast, the treatment group was more likely to be engaged in further vocational training at follow-up: specifically, 14 percent compared to 9 percent of the control group, a statistically significant impact of 5 percentage points (Figure ES.2). The small countervailing impacts on employment and training were driven by mostly female applicants substituting further training for employment at the time of the follow-up survey (not shown here). Overall, about 54 percent of the treatment group was productively engaged—employed in a paid job or engaged in vocational training—at follow-up compared to 58 percent of the control group, a small difference that was not statistically significant (Figure ES.2).

Figure ES.1. Enrollment in and completion of vocational training since the start of VTGF training

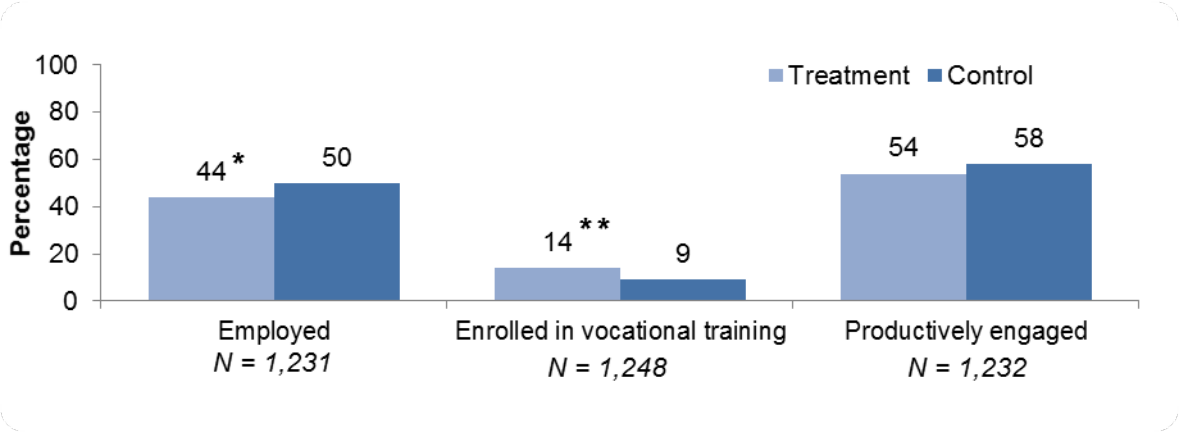


Source: VTGF baseline and follow-up survey.

Note: All means are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

Figure ES.2. Impacts on employment and productive engagement at follow-up



Source: VTGF baseline and follow-up survey.

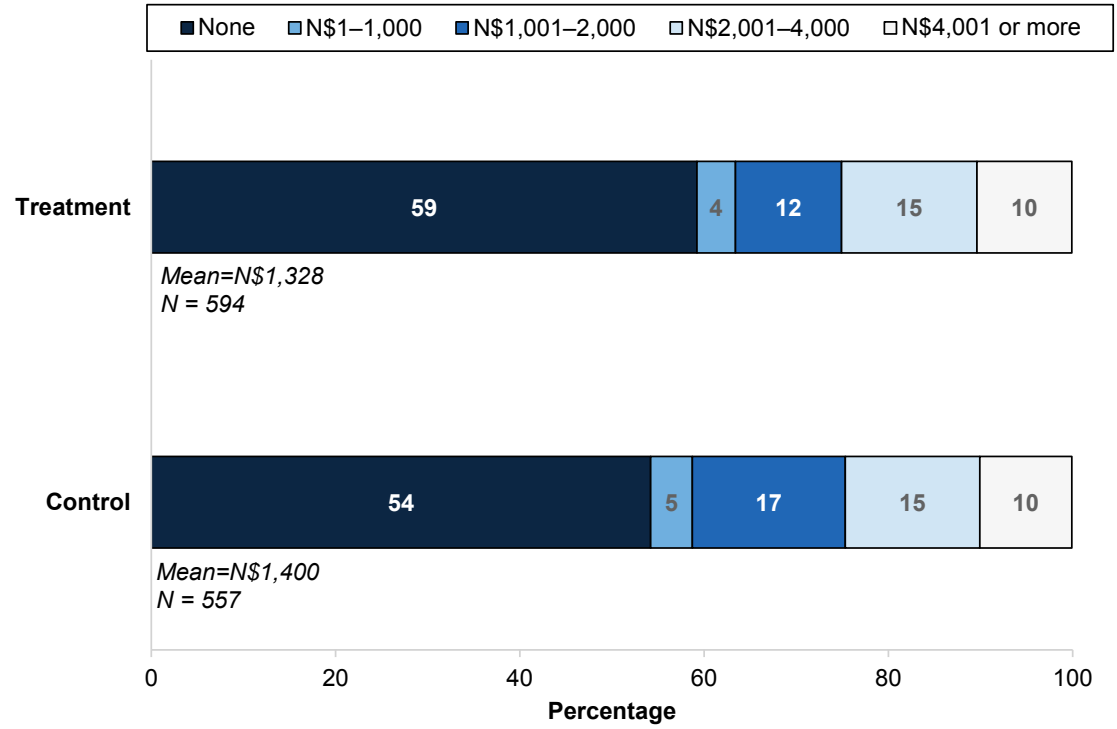
Note: All means are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Productive engagement is defined as employment or enrollment in vocational training, Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

3. The VTGF scholarship offer had no impacts on applicants' earnings or on the distribution of total individual or household income in the month before the follow-up survey.

Consistent with the limited impacts on employment, the VTGF scholarship offer had no significant impacts on applicants' earnings in the month before the follow-up survey, which are defined as wages or profits from self-employment (earnings are zero for individuals who were unemployed) (Figure ES.3). These earnings were generally low: more than half the treatment group had no earnings in this month, and only about one quarter earned more than N$2,000. The estimated impacts on the distribution of total individual income (including non-earnings components) and household income in the month before the follow-up survey were also not statistically significant (not shown here). These findings suggest that the offer of VTGF funding had no significant positive impacts on overall individual and household well-being.

Figure ES.3. Impacts on earnings in the month before the VTGF follow-up survey (percentages, unless otherwise indicated)



Source: VTGF baseline and follow-up survey.

Note: All means are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. The treatment-control difference in mean earnings is not statistically significant at the 10 percent level of significance using a two-tailed test (p-value=0.63). The treatment-control difference in the distribution of earnings is also not statistically significant at the 10 percent level in a test of joint significance across all categories using seemingly unrelated regressions (p-value=0.33).

F. Policy implications

1. Providing scholarships for vocational training should be a key component of efforts to expand vocational training in Namibia. Our impact estimates show large and positive impacts of VTGF on enrollment in and completion of training, which indicates that without the scholarships, many of the trainees would not have enrolled in vocational training. The scholarships lower the financial barrier to attending vocational training, particularly for women. Because Namibia has a large population of young people (more than half its current population is under 25) (United Nations 2015), a policy to commit resources from the NTF to provide scholarships for those who enroll in vocational training in key priority areas can help the country build a more skilled labor force. In addition, by supporting women's enrollment in vocational training, scholarships can help improve gender equality in economic opportunities.

2. The findings from the VTGF impact evaluation suggest that providing vocational training scholarships to trainees may not increase employment and earnings in the short or medium term, but it can still contribute to improving the productive capacity of the labor force. The negative impact on employment that we found was mitigated by the positive impact on

additional training. These impact estimates suggest that applicants in both treatment and control groups were involved with efforts to increase their human capital at the time of the follow-up survey: the treatment group members were more likely than control group members to invest in building their human capital through further vocational training, whereas control group members were more likely to do so by gaining paid employment experience. Longer-term employment-related outcomes would depend on which type of human capital investment leads to greater economic well-being. In recognition of these paths to human capital and skill development, future efforts to provide scholarships for vocational training should be supplemented by greater attention to supporting and guiding trainees in their post-training endeavors, in terms of assistance in job placement or self-employment start-up, and of providing advice on further training opportunities.

3. If the employment prospects of vocational training graduates are to be improved, it will be critical to determine market demand for skills in a timely and effective manner. The impacts of the VTGF scholarships on employment were limited, possibly because the process to determine market demand was not as fully developed and operational as intended when the grants were made. The NTA's efforts, particularly through the ISCs, are important for determining market demand and, in turn, for guiding the country's future investments in vocational training through the NTF in the right direction. However, given the small size of the private sector in Namibia, it might still be difficult to absorb all vocational training graduates in the formal sector; future policy might therefore need to focus more on the informal sector and encouraging entrepreneurship and self-employment.

4. Stakeholders in Namibia recognize job attachment to be a key step toward formal employment after the trainees graduate, but participation in job attachments by trainees in the impact evaluation was relatively low. Training providers and employers need to collaborate to increase the availability of job attachments in the future, and the NTA could help create an enabling environment by raising awareness and facilitating links between these two groups.

5. The NTA and training providers should seek to increase take-up of training by those eligible for funding and reduce cases of enrollees dropping out and not completing training. Two factors may have led eligible applicants not to take up the offer of funding and led participants to drop out of trainings: (1) costs of training beyond tuition and the VTGF allowance for board and lodging, and (2) a weak match between the trainings to which applicants applied and what they were interested in pursuing. The NTA may want to assess to what extent scholarships fail to meet trainees' other costs, and to identify ways to help trainees finance these costs without placing a greater burden on the government (for example, by identifying mechanisms to target additional financial support to the neediest trainees). Regarding potential mismatch of applicants' interest and training to which they apply or in which they enroll, the training providers may want to gather information on applicant interest during the application process and try to match it to the trainings they are offered. This might help increase trainee commitment to participation in and completion of training, improving the efficiency of the vocational training system. The NTA might consider encouraging this approach among training providers who receive funding through the NTF.

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I. INTRODUCTION

To promote economic growth and reduce poverty in Namibia, the Millennium Challenge Corporation (MCC) signed a $304.5 million compact with the Government of the Republic of Namibia in 2009. The compact, which was formally completed in September 2014, included three projects: tourism, agriculture, and education. The education project, with a total investment of about $142 million, was the largest project (Millennium Challenge Account-Namibia [MCA-N] 2014). It sought to address the shortage of skilled workers in Namibia and the education system's limited capacity to train such workers. These limitations are among the most serious constraints to Namibia's economic diversification and broad-based economic growth (African Development Bank et al. 2015; U.S. Agency for International Development 2003; World Bank 2013). The education project consisted of several activities that aimed to improve the quality of Namibia's workforce by enhancing the equity and effectiveness of basic, vocational, and tertiary education.

The vocational training activity was one of the key activities under the education project. This $28 million activity focused on expanding the availability, quality, and relevance of vocational education and skills training in Namibia, and consisted of three subactivities: (1) grants for high-priority vocational skills programs offered by public and private training providers through the Vocational Training Grant Fund (VTGF); (2) technical assistance to establish a National Training Fund (NTF), intended to provide a sustainable source of funding for vocational training programs in Namibia; and (3) improvement and expansion of Namibia's network of Community Skills and Development Centers (COSDECs), which provide vocational training for marginalized populations—primarily out-of-school youth but also low-skilled adults. MCC contracted with Mathematica Policy Research to evaluate the vocational training activity, including all three subactivities.

In this report, we present the findings from the evaluation of the VTGF subactivity. The design for this evaluation includes a rigorous impact evaluation complemented by a qualitative implementation analysis (a type of performance evaluation). The impact evaluation focuses on the main component of the subactivity—awarding grants to training providers to provide scholarships for vocational training—and uses a random assignment design to assess the effects of these scholarships on recipients' training and labor market outcomes. The implementation analysis uses largely qualitative data to explore the implementation of the subactivity, including the scholarship component. The findings from the implementation analysis are described in detail in other reports (Mamun et al. 2015 and Velyvis et al. 2016); therefore, this report focuses on the findings from the impact evaluation. Nevertheless, it includes a summary of key findings from the implementation analysis that are relevant to the VTGF evaluation, and it draws on these findings to help interpret the impact evaluation findings, where possible.

In the rest of this chapter, we first review the research literature on the impacts of vocational training programs in developing countries, to provide context for the Namibia VTGF evaluation. We then describe the VTGF subactivity and its program logic in further detail, and provide a roadmap for the rest of the report.

A. Literature review

Although a large body of literature documents rigorous evidence on the impacts of vocational training programs in developed countries,[1] the evidence for developing countries is much more limited. A recent review of impact evaluations of vocational training programs targeted to youth in lower- and middle-income countries (Tripney et al. 2013) identified 26 studies that used an experimental or quasi-experimental design to estimate impacts on labor market outcomes (very few of the cited studies used an experimental design, which provides the highest standard of evidence). On average, these studies found positive impacts on outcomes such as paid employment and earnings. However, impacts varied substantially across studies, and the average impact on paid employment was much lower when the review considered only higher quality studies. Given the variation in the quality of the quasi-experimental studies and in the studies' estimated impacts, the authors caution that it is difficult to draw strong inferences about the impacts on vocational training programs more generally from the available literature.[2]

The handful of experimental evaluations of vocational training programs in developing countries conducted to date have found mixed results. These include the following:

- Card et al. (2011) conducted an experimental evaluation of a subsidized training program for low-income, out-of-school youth in the Dominican Republic. The authors found no statistically significant impacts on employment approximately a year after graduation, but marginally significant and positive impacts of about 10 percent on wages among those employed.
- In contrast, Attanasio et al. (2011) found more positive results from an experimental evaluation of a similar training program for disadvantaged youth in Colombia, with positive impacts of about 7 percent on employment and almost 20 percent on wages for female trainees approximately a year after the program ended. Although there were no significant impacts on these outcomes for men, the program had a significant positive impact on the probability of formal sector employment for both women and men (7 and 5 percent, respectively), which was one aim of the program. A follow-up study of the same program (Attanasio et al. 2015) found that positive impacts on the probability of formal sector employment persisted up to 10 years after the end of the program, although the impacts for men were no longer statistically significant.
- Hirshleifer et al. (forthcoming) conducted an experimental evaluation of a large-scale vocational training program in Turkey, which provided three months of training to unemployed individuals through a range of private and public providers. The evaluation found no statistically significant impacts on employment or labor income one year after

[1] See Card et al. (2010) for a meta-analysis of training programs and other active labor market programs in the United States and Europe. Specific examples of large randomized evaluations of vocational training programs in the United States include the Job Training Partnership Act study (Bloom et al. 1997) and Job Corps (Schochet et al. 2008).

[2] Differences in methods and data across studies have sometimes even led to widely varying results for the same program. For example, Ibarrarán and Rosas Shady (2009) noted that seven evaluations of the same training program in Peru using data from different cohorts produced a wide range of estimated impacts. Similarly, Delajara et al. (2006) reported a wide range of estimated program impacts for a training program in Mexico, which they attributed to differences in the evaluation methodology.

training; even impacts on outcomes that seemed positive and significant after one year (such as measures of employment quality) had dissipated after three years, based on administrative data.

- Cho et al. (2013) conducted an experimental evaluation of an on-the-job vocational training program in Malawi that placed youth as apprentices to master craftspeople. The authors found that the program's dropout rate was high, especially among women. Nevertheless, the training had significant positive impacts on participants' self-reported skills, continued investment in human capital, and subjective well-being in the short run, about four months after the training ended. However, there were no associated improvements in labor market outcomes such as employment and earnings.
- Blattman et al. (2014) evaluated the impact of providing cash grants to groups of poor unemployed youth in rural Uganda to help them become self-employed artisans. Recipients used the grants to invest in vocational training (provided by local artisans or small local training institutes) and in tools and materials to start their own businesses. After four years, compared to youth in the control group, the grant recipients were twice as likely to be engaged in a skilled trade and had substantially higher earnings (38 percent) and work hours (17 percent).
- Alcid (2014) experimentally evaluated a program that provided youth in rural Rwanda with training related to work readiness skills and specialized technical skills (including vocational training), as well as internship opportunities. Six months after the program ended, youth in the treatment group had significantly higher work readiness skills and were 12 percentage points more likely to be employed than those in the control group.
- Maitra and Mani (2014) conducted an experimental evaluation of a six-month vocational training program in stitching and tailoring for unemployed women in India. Six months after training, program participants were significantly more likely to be employed (6 percentage points), work additional hours (2.5 hours per week), and earn more (150 percent) than nonparticipants. These short-run impact estimates were all sustained in a second follow-up conducted 18 months after training.

Overall, the existing literature on evaluations of vocational training programs in developing countries has important gaps, especially with regard to rigorous evaluations. Few impact evaluations of these programs exist and experimental evidence is especially limited—particularly in sub-Saharan Africa. Given the limited evidence and substantial variation in impacts found in available studies across developing regions and countries (possibly due to differences in social, economic, and labor market conditions, existing skill levels of targeted groups, and training program characteristics), further rigorous evidence would be valuable. In addition, few studies have integrated impact evaluation findings with an implementation analysis to help interpret the estimated impacts, which is particularly relevant given the substantial variation in impacts in the literature.

The evaluation of the VTGF subactivity in Namibia described in this report will help address some of these gaps and provide useful information for Namibian policymakers. In particular, it provides rigorous evidence on the impact of funding for vocational training in Namibia through an experimental design, complemented by an implementation analysis to help interpret the findings. The evaluation findings may be especially valuable for policymakers in

Namibia given the lack of rigorous evidence on vocational training impacts in the country and the planned expansion of training in key priority areas under the NTF, which was expected to build on the VTGF experience.

B. The VTGF subactivity

The VTGF subactivity was designed to provide funding for vocational skills programs in high-priority areas while the NTF was being set up. It was also intended to serve as a pilot for future vocational training funding under the NTF, which will involve a broader, system-wide reform of the vocational training sector but has many features similar to those of the VTGF. Among the components of the VTGF subactivity, this report focuses on awarding grants to training providers. Under this component, the VTGF solicited grant applications for conducting trainings in specific high-priority skills areas. Training providers who received those VTGF grants used them to award scholarships to eligible disadvantaged applicants.[3] The scholarships, which covered tuition and included a subsistence allowance, were intended to increase access to training for these applicants. Providers who received VTGF grants could also apply for a capacity-building grant, which they could use for purposes related to increasing their capacity (such as purchasing new tools and equipment or improving or expanding their infrastructure).

The first grants were awarded in the fourth quarter of 2010, and the last grant was awarded in the third quarter of 2014. A total of 14 training providers located throughout Namibia received VTGF grants, and some received more than one grant (for different intakes of trainees).[4] The National Training Authority (NTA)—the government body that will oversee the NTF—managed most of the grants. (MCA-N managed the initial grants.)

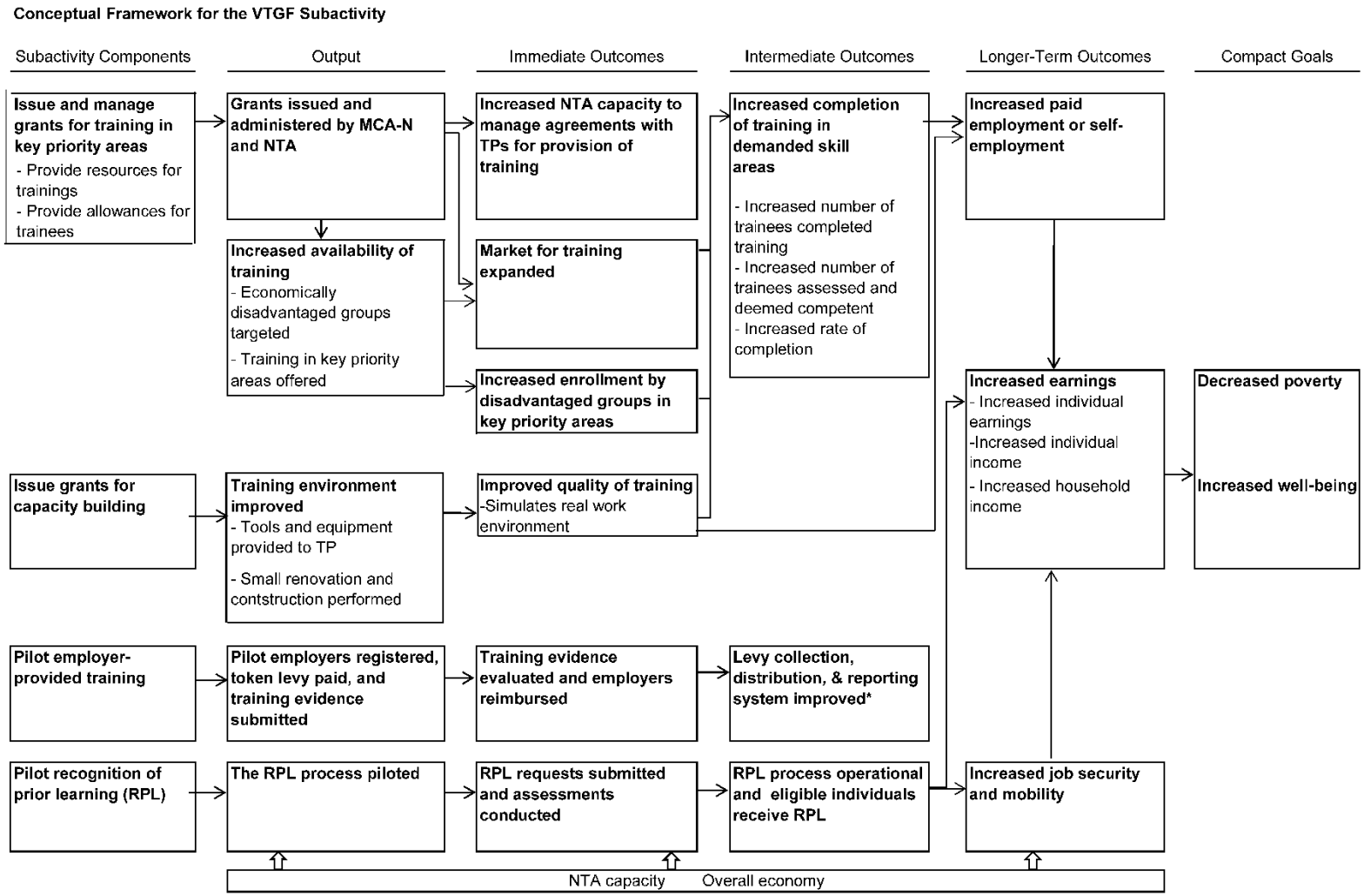
The remaining components of the VTGF were pilots of two other initiatives that will be fully implemented under the NTF. The first pilot was testing reimbursing employers for the costs of employer-sponsored training under the NTF's levy collection, distribution, and reporting system (LCDRS), in which employers register, pay a (token) levy, and submit training evidence to get reimbursed. The second pilot was testing the recognition of prior learning (RPL) program, which helps people who have experience in a certain vocational skills area but do not have formal training to compile a portfolio of evidence of their work experience and have their skills formally assessed and certified. We evaluated these two pilots separately through the qualitative implementation analysis, and do not focus on them in this report beyond summarizing the findings that are relevant to the key research questions for the VTGF evaluation (as mentioned above, the detailed implementation analysis findings are presented in Mamun et al. 2015 and Velyvis et al. 2016).

In Figure I.1, we provide a logic model that illustrates how the components of the VTGF are expected to contribute to the ultimate compact goals of decreased poverty and increased economic well-being. The left-hand column lists the components of the subactivity and the second column shows the direct outputs of these components. The key outputs included the

[3] "Disadvantaged" was defined as having an annual household income of less than N$250,000 (about US$27,000 at the average exchange rate over the award period) after subtracting training costs for other household members who might be participating in training at the time.

[4] The evaluation does not include all of these grants; in Chapter II, we list the grants that are included.

Figure I.1. VTGF logic model



Assumptions: Training providers are on the path to NTA registration and NQA accreditation. RPL certificate is the same and is valued in the same way as a traditional vocational training certificate. Training is of sufficient quality.

* Detailed levy development and processes are reflected in the NTF conceptual model (Mamun et al. 2014).

MCA-N = Millennium Challenge Account-Namibia; NQA = Namibia Qualifications Authority; NTA = National Training Authority; NTF = National Training Fund; TP = training provider.

NTA's administration of grants and increased availability of training for the disadvantaged (resulting from the VTGF grants), improved equipment and infrastructure (resulting from the capacity-building grants), and implementation of the RPL and employer-provided training pilots.

The third, fourth, and fifth columns in the logic model show the immediate, intermediate, and longer-term outcomes, respectively, of the investments under the VTGF subactivity. In the immediate term, the NTA's capacity to manage service-level agreements, under which training providers commit to certain milestones and disburse funds based on achieving these milestones, was expected to increase through its experience in managing the VTGF grants. The grants were expected to increase the quality of training through the investments in tools and infrastructure, among training providers who received the capacity-building grant; increase enrollment of disadvantaged groups targeted by the grants; and expand the market for training through the competitive bidding process for grant funds. The employer-provided training and RPL pilots were also were expected to occur (culminating in reimbursement of employers and assessment of candidates, respectively), and these pilots would produce lessons learned. In the intermediate term, the VTGF grants were expected to lead to increased training completion in market-demanded skills areas, which would increase trainees' employment rates and earnings in the longer term. The sixth and final column in the logic model shows the compact goals to which the subactivity was ultimately expected to contribute, namely decreased poverty and increased well-being.

C. Roadmap for the report

The rest of this report describes our evaluation of the VTGF subactivity and presents the evaluation findings. In Chapter II, we review the key research questions for the evaluation and the evaluation design. We also discuss data collection, outcomes of interest, the analysis approach, and some limitations of our evaluation. In Chapter III, we present the evaluation findings, including a summary of findings from the implementation analysis and more detailed description of findings from the impact evaluation of the scholarship component of the subactivity. In Chapter IV, we review the main findings, identify implications for policy and practice, and describe our plans for disseminating the findings.

II. EVALUATION DESIGN, DATA, AND ANALYSIS APPROACH

In this chapter, we review the evaluation design for the VTGF evaluation and describe the analysis we conducted. We begin by listing the key research questions for the evaluation and providing an overview of the type of evaluation we are implementing. We then describe the data that we collected for the evaluation, the key outcome indicators that we analyze in this report, and our analysis approach. We conclude with a discussion of some limitations of our evaluation.

A. Research questions

The evaluation of the VTGF subactivity seeks to address 11 key research questions, which we have grouped into two sets, listed below.

Implementation analysis

1. Was the VTGF subactivity implemented as planned?
2. How were the VTGF grants managed?
3. What were beneficiaries' perceptions of the VTGF grants?
4. How did employers hire VTGF graduates, and what were their perceptions of the graduates?
5. Were the RPL and employer-provided training pilots implemented as planned? How did employers' perceptions of and attitudes toward their RPL-certified employees change after the employees became certified? How did the employees' perceptions about their job security and mobility change?

Impact analysis

6. To what extent did applicants who were offered the opportunity of training through the VTGF receive more training relative to nonfunded qualified applicants?
7. To what extent did the VTGF-funded trainees' employment outcomes improve relative to outcomes of nonfunded qualified applicants?
8. To what extent did VTGF-funded trainees have higher earnings and income relative to nonfunded qualified applicants?
9. To what extent did increased earnings result from increased wages while employed versus increased employment?
10. Did the effects of the VTGF-funded training vary by trainee characteristics?
11. What key characteristics or practices of training providers were associated with stronger impacts on employment and earnings?

These research questions are closely related to the VTGF logic model in Chapter I. The first five research questions seek to analyze the implementation of the VTGF subactivity from different perspectives, which is mainly related to achieving the outputs and immediate outcomes in the logic model. Thoroughly analyzing the implementation process is important to understand why the intermediate- and long-term outcomes in the logic model have or have not been achieved. The remaining research questions are designed to measure and explore the effects of VTGF grants on intermediate- (receipt of training) and longer-term (employment and income)

trainee outcomes. This will test a crucial component of the VTGF program logic: that VTGF grants led to increased enrollment in, and completion of, training and improved trainees' labor market outcomes.

To answer the key research questions, we use a mixed-methods approach that includes a qualitative implementation analysis (a type of performance evaluation) and a quantitative impact evaluation. The qualitative implementation analysis uses insights obtained from trainees, control group members, MCA-N staff, NTA staff, training providers, and other stakeholders to address questions 1 through 5. The impact evaluation enables us to provide quantitative estimates of impacts on the key outcomes of training, employment, and earnings and income (questions 6 through 9), and explore the variation in impacts (questions 10 and 11).

B. Evaluation design

As mentioned above, the VTGF subactivity evaluation is a mixed-methods evaluation that includes a qualitative implementation analysis and a quantitative impact evaluation. In this section, we describe these evaluation components in greater detail.

Implementation analysis

The implementation analysis for the VTGF evaluation relies primarily on qualitative information that was collected from stakeholders in late 2014, close to the end of the compact, covering all components of the subactivity. Another round of qualitative data was collected from a much smaller group of stakeholders in late 2015, about a year after the end of the compact, focusing on the RPL pilot.

We triangulated the data collected from these stakeholders (which we describe in more detail in Section C of this chapter) by systematically coding the data using Atlas.ti, and categorizing and sorting the coded data to identify major themes related to the various research questions. This analysis enabled us to develop a set of qualitative findings that reflected similarities as well as differences in perspectives among respondent groups.

Impact evaluation

To estimate the impact of receipt of VTGF-funded scholarships on trainees' outcomes, we are using a random assignment design. Under this design, the training providers randomly assigned eligible applicants for each VTGF-funded training in which the number of applicants exceeded the number of available slots to either a group that was offered VTGF funding (the treatment group) or one that was not (the control group).[5] Because of random assignment, the treatment and control groups for each training should be similar in all respects, on average, except that the treatment group received the offer of funding. Thus, we can use the control group to approximate the counterfactual: the average experience of the treatment group applicants in the absence of the offer of funding. This enables us to attribute any differences in outcomes that arise between the treatment and control group after random assignment to the cumulative impact of the offer of VTGF funding up to that point. By combining the data for all trainings included in

[5] Throughout this report, we use the term "training" to refer to one of these distinct random assignment groups (a single training provider thus may encompass multiple VTGF "trainings").

the evaluation, we can estimate the overall impact of the offer of VTGF funding for the trainings included in our sample (which, as we note in Section II.F, was not necessarily representative of all VTGF trainings).

The random assignment procedure for the VTGF evaluation was conducted as follows. Applications for a particular VTGF-funded training were solicited, typically through advertisements in a national newspaper that provided information about the availability of scholarships and eligibility requirements. Applicants had to satisfy the income criterion mentioned above (annual household income of under N$250,000 after subtracting training costs for other household members participating in training at the time), as well as other criteria the training provider specified. The training provider then screened the applicants based on its specific criteria (for example, grades in the final school-leaving examinations) to identify a final pool of applicants for random assignment. The training provider generally conducted random assignment using the random number generator in Microsoft Excel, with MCA-N and/or the NTA (for NTA-administered grants) providing oversight.[6] Training providers conducted random assignment separately for each VTGF-funded training after the training was funded and they had solicited applications from potential trainees. Therefore, random assignment occurred on a rolling basis from the fourth quarter of 2010 to the third quarter of 2014, as MCA-N and the NTA funded additional trainings. For each training, the training provider offered applicants assigned to the treatment group a VTGF scholarship. Most of these providers also served trainees who were funded through other sources and simply accommodated the additional VTGF-funded trainees in their regular training programs. Applicants in the control group therefore also had the option of applying to these (and other) trainings using other funding sources, through the regular admissions process.

The impact evaluation relies primarily on follow-up data on training and labor market outcomes collected from treatment and control group members approximately one year after the end of the relevant training (although, as we note below, the timing of the follow-up survey varied across trainings). In the impact evaluation literature, this is a typical period used to evaluate impacts of vocational training programs (see, for example, Card et al. 2011 and Attanasio et al. 2011). We considered a longer follow-up period to allow more time for outcomes to manifest, but we determined that this would be risky due to the increased possibility of recall error and sample attrition.

C. Data collection

In this section, we describe the data that we used to inform the VTGF evaluation, including the qualitative data that we collected to inform the implementation analysis and the quantitative data that we collected to inform the impact evaluation.

[6] The random assignment mechanism differed from providers' usual selection processes, which typically involved selecting the "best" applicants based on various criteria. Therefore, it is possible that the treatment group included some applicants who would not typically have been admitted, and who might therefore have poorer outcomes than the typical group of trainees. However, this concern is largely mitigated by the fact that providers could set their own minimum eligibility criteria, and all applicants who were randomly assigned had to meet these criteria.

1. Qualitative data for the implementation analysis

The implementation analysis of the VTGF subactivity draws on two rounds of qualitative data. The first round was collected in October and November 2014, close to the end of the compact, and covered all components of the subactivity. The second round was collected in October to December 2015, about a year after the end of the compact, and focused on the RPL pilot. The Multidisciplinary Research Center (MRC) at the University of Namibia collected the data in each round, and Mathematica provided oversight.

Mathematica developed semi-structured protocols to guide focus groups and/or interviews with a range of stakeholders (Table II.1). In the first round, these stakeholders included applicants to VTGF-funded trainings, training providers who received VTGF grants, staff from various organizations involved in implementation (including MCA-N, MCC, NTA, and the GOPA consultants who supported the NTA), employers of RPL pilot participants and VTGF-funded trainees, and RPL pilot participants. In the second round, the stakeholders included the NTA staff and RPL pilot participants only. Through these focus groups and interviews, we obtained in-depth information on how the implementation of the VTGF subactivity occurred in practice, the experiences of VTGF trainees and training providers, expectations for trainees' employment prospects, the experiences of RPL pilot participants, and other relevant topics. Mathematica prepared two reports presenting findings from the analysis of the first and second rounds of qualitative data (Mamun et al. 2015 and Velyvis et al. 2016, respectively).

Table II.1. Number of focus groups and interviews for the implementation analysis of the VTGF subactivity

Data source	Type of data collection	First round: Oct-Nov. 2014	Second round: Oct.-Dec. 2015
VTGF trainees	Focus groups	4	--
VTGF control group members	Interviews	6	--
MCA-N staff	Interviews	1	--
MCC resident country mission	Interviews	1	--
NTA staff	Interviews	3	3
GOPA Consulting Group consultants[a]	Interviews	2	--
Training providers	Interviews	12	--
Employers[b]	Interviews	10	--
RPL participants	Interviews	6	4

[a]Provided technical assistance to the NTA related to management of VTGF grants and the RPL program.
bIncluded employers of VTGF-funded trainees and RPL participants.

2. Survey data for the impact evaluation

To inform the impact evaluation, we drew on two rounds of quantitative surveys with eligible applicants who were randomly assigned to VTGF trainings: a baseline survey and a follow-up survey. MCA-N and NORC (in partnership with Survey Warehouse, a local data collection firm) conducted the baseline survey from December 2011 to July 2014 using a computer-assisted telephone interview system. This timing corresponded roughly to the start of the various VTGF-funded trainings. The baseline survey collected data on applicants' basic

demographic characteristics, as well as their vocational training history, employment status, and earnings and income. It also gathered extensive contact information for applicants to facilitate contacting them for the follow-up survey.

The follow-up survey for these applicants was conducted from March 2014 to April 2016. Survey Warehouse collected these data between March and July 2014, with oversight from NORC. Mathematica took over oversight of the follow-up data collection in February 2015 (when the next cohort was due for follow-up) through the end of the follow-up survey period in April 2016. Although the plan was for the follow-up survey to occur roughly one year after the scheduled end of each training, in practice the timing varied considerably (Table II.2). For example, about 29 percent of the respondents completed the follow-up survey 6 or 7 months after the end of training, and about 6 percent completed it more than 18 months after the end of training; however, the median was close to one year after the end of training (13 months).

Several factors led to this variation in the timing of the follow-up survey. First, we discovered at a late stage that some training date information we had used to schedule the survey was incorrect. In most cases, the changes were minor, but for one very large training cohort (applicants to the International University of Management [IUM]), the information was incorrect by about 6 months—this cohort accounts for all the cases surveyed less than 12 months after the end of training. Second, a delay occurred in starting the follow-up survey, for both the NORC and Mathematica-managed cohorts, so that the survey for the first cohorts in each case started later than the targeted 12 months after the end of training. Third, if interviewers could not contact applicants initially, they made further attempts to contact them periodically. In some cases, they made successful contacts several months after the sample was released, well beyond the targeted 12 months after the end of training.

Table II.2. Timing of the VTGF follow-up survey relative to the end of training for the follow-up analysis sample (percentages, unless otherwise noted)

Time between VTGF training end date and follow-up survey	Analysis sample
6 to 7 months	29.0
8 to 11 months	0.0
12 months	14.6
13 to 15 months	40.5
16 to 18 months	9.7
19 to 28 months	6.2
Mean (months)	11.9
Median (months)	13
Sample size	**1,250**

Some variation in the timing of the follow-up survey is common in the literature, although to a lesser extent— for example, Card et al. (2010) report findings between 10 and 14 months after training, and Attanasio et al. (2011) report findings between 13 and 15 months after training. Even though we focus on the full sample for the main impact findings, considering the variation in the timing of the follow-up survey we also explore how the findings for key outcomes vary if we restrict to the sample to those surveyed less than 12 months after training or at least 12 months after training (Appendix A).[7]

The VTGF follow-up survey, which we use to estimate impacts, comprised several sections (Table II.3). It collected additional data on applicants' demographic characteristics to augment the baseline information, as well as a range of outcomes relevant to the research questions (we discuss these outcomes in further detail in Section D of this chapter). These outcomes focus on applicants' experiences with vocational training since random assignment, employment and earnings since the end of the VTGF-funded training, and their recent income. They also include secondary outcomes related to HIV/AIDS knowledge and parenthood. These outcomes might be affected because most of the VTGF-funded trainings included HIV/AIDS modules, or through other mechanisms related to training participation (for example, focusing on their future careers might reduce trainees' rate of unplanned parenthood, or meeting potential partners at training might increase it).

Table II.3. VTGF follow-up survey sections

Section	Key topics covered
Identifying information	Name; date of birth or age; national identification number
Education and vocational training	Highest level of education; enrollment in vocational training (as of survey date and in previous three years); number of training programs attended; dates of vocational training; institution, skill area, and level of vocational training; receipt of funding from MCA-N for vocational training; dropout from vocational training; job attachments; training assessment and certification; job placement assistance; perceived quality of vocational training
Employment and earnings	*Employment status:* whether employed (as of survey date and in previous three years) *Among those employed since the end of training:* number of jobs held; dates of employment; occupation; whether employment was part of a job attachment; hours and days worked; type of employment (part-time, full-time, or self-employed); source of information about job; earnings from employment; satisfaction with employment; size and sector (formal or informal) of workplace; relevance of training to employment *Among those not employed since the end of training:* whether actively sought work in previous 12 months; availability for work in previous 12 months
Income and household demographics	Monthly individual income (previous month); number of dependents; marital status; household size; monthly household income (previous month); town and region of origin; language spoken at home
Health behaviors	Awareness of AIDS; knowledge of benefits of condom use; children conceived in previous 24 months (including births)

[7] The timing of the survey is associated with specific training providers—especially for those surveyed less than 12 months after the end of training, all of whom are associated with IUM trainings. Therefore, we cannot determine the extent to which differences between the findings for the restricted sample and the full sample are because of differences in survey timing or training provider. Nevertheless, it is useful to explore the sensitivity of the results to this restriction.

The targeted sample for the VTGF impact evaluation consists of applicants to the 26 trainings listed in Table II.4. Ten providers conducted these trainings, some of which conducted multiple trainings in different skill areas and/or for different cohorts (intakes); the trainings ranged from less than one to 22 months in duration (the median duration was 8 months). Table II.4 does not show the full set of trainings funded by the VTGF activity. It excludes 27 trainings that lacked a control group (typically because they had enough slots to accommodate all applicants),[8] 22 trainings for which the follow-up survey date (12 months after the end of training) would fall outside of the evaluation period, and 9 trainings for which there were severe violations of random assignment (the first three intakes of COSDEC Benguela). These 58 excluded trainings comprise about half of the total VTGF-funded trainees.

Table II.4. VTGF trainings included in the evaluation

Training provider	Course	Intake	Start date	Course duration (months)	Number of treatment applicants	Number of control applicants
NATH	Tour Guiding	1	3 Nov 2010	20	50	33
Wolwedans	Hospitality & Tourism	2	11 Jul 2011	7	35	25
Wolwedans	Hospitality & Tourism	3	7 Feb 2012	9	39	11
ABTCC	Food & Beverage/ Housekeeping	1	4 Sep 2012	1	15	16
ILSA	Reception Management & Office Administration	1	1 Oct 2012	13	118	27
IUM[a]	Hospitality & Tourism	1	5 Jan 2013	22	59	29
IUM[a]	Hospitality & Tourism	1	5 Jan 2013	22	243	142
VVTC	Front Office	1	10 Jun 2013	14	12	6
VVTC	Food Production	1	10 Jun 2013	14	10	21
VVTC	Housekeeping & Food Preparation	1	10 Jun 2013	14	13	7
VVTC	Food & Beverage Services	1	10 Jun 2013	14	12	6
ZVTC	Plumbing	1	8 Jul 2013	13	20	68
ZVTC	Hospitality & Tourism	1	8 Jul 2013	13	20	168
ZVTC	Office Administration & Computing	1	8 Jul 2013	13	16	212
ZVTC	Bricklaying	1	8 Jul 2013	13	20	24
KAYEC	Carpentry	1	1 Oct 2013	4	15	18
KAYEC	Shuttering	1	1 Oct 2013	4	15	4
KAYEC	Concrete Work	1	1 Oct 2013	4	15	16
KAYEC	Concrete Work	2	17 Mar 2014	2	9	1
COSDEC Benguela	Office Administration & Computing	4	14 Apr 2014	4	30	16
NamWater	Grader	2	14 Jul 2014	<1	10	4
NamWater	Bulldozer	2	16 Jun 2014	<1	10	2
NamWater	Forklift	2	19 May 2014	<1	20	5

[8] Random assignment was conducted for a handful of these trainings. However, after accounting for applicants who applied to multiple trainings (as described below, the evaluation linked applicants to the first included training to which they applied), these trainings were left with no control group. These trainings also include one Wolwedans training that had a control group, but none of the control group members responded to the follow-up survey, so the training did not contribute to the impact estimates.

Training provider	Course	Intake	Start date	Course duration (months)	Number of treatment applicants	Number of control applicants
KAYEC	Shuttering	3	30 Jun 2014	2	30	25
KAYEC	Carpentry	3	30 Jun 2014	2	30	22
KAYEC	Concrete Work	3	30 Jun 2014	2	23	4
Total	**--**	**--**	**--**	**--**	**889**	**912**

Source: MCA-N database of VTGF trainings.

Notes: Table excludes 27 trainings with no control group (1 Wolwedans training, 2 NATH trainings, 2 ZVTC trainings, 5 KAYEC trainings, 10 RVTC trainings, 1 NamWater, 4 NAMCOL, and 2 COSDEC Benguela trainings); 22 trainings not covered by the evaluation period (4 NAMCOL trainings, 14 NIMT trainings, 3 NamWater trainings, and 1 OVTC training); and 9 trainings with severe violations of random assignment (9 COSDEC Benguela trainings).

Number of treatment and control applicants corrects for multiple applications; applicants are linked to the first included training to which they applied.

[a] IUM hospitality and tourism trainings were conducted at two sites with separate random assignment; the evaluation treats them as separate trainings.

There were 1,801 unique applicants to the included trainings, including 889 assigned to the treatment group and 912 assigned to the control group (Table II.5). Of these 1,801 unique applicants, 1,250 completed a follow-up survey, resulting in a response rate of 69 percent (72 percent in the treatment group and 67 percent in the control group). These 1,250 respondents, composed of 642 treatment and 608 control respondents, constitute the analytic sample used for the VTGF impact analysis.

Table II.5. VTGF follow-up survey sample sizes and response rates

	Full sample	Treatment	Control
Number of unique applicants	1,801	889	913
Number of completed surveys	1,250	642	608
Response rate (percentage)	69.4	72.2	66.6

D. Outcomes for impact analysis

The VTGF impact analysis focuses on outcomes in four key domains: (1) vocational training, (2) employment and productive engagement, (3) earnings and income, and (4) health behaviors. Although we collected data for a rich set of outcome measures in each domain, we must be mindful of the statistical problem of "multiple comparisons." When estimating impacts on a large number of outcomes, at least a few of the estimates are likely to be statistically significant by chance, even if no true impacts occurred (Schochet 2008). Therefore, we follow the recommendations of Schochet (2008) and differentiate between a limited number of primary outcomes and a larger number of secondary outcomes. We approach the findings for secondary outcomes with more caution, assessing whether they are supported by statistically significant impacts on the primary outcomes or a credible pattern of statistically significant impacts on the secondary outcomes.

The primary and secondary outcomes that we examine in the vocational training and health behaviors domains are the same as those proposed in our design report (Borkum et al. 2014).

However, we determined that the impact analysis would be more informative if we adjusted some of the outcomes that we originally proposed in two domains: employment and productive engagement, and earnings and income. Specifically, many of the outcomes that we proposed in these domains focused on the period between the end of the VTGF training to which each individual applied and the follow-up survey. Instead, we have focused the impact analysis in this report on outcomes measured at the follow-up survey date, for two main reasons. First, as discussed above, the period between the end of VTGF training and the follow-up survey varied substantially. We initially expected this period to be approximately 12 months for all applicants, providing a common window in which to assess impacts across trainings. However, this period varied from 6 to 28 months in practice, which would make average impacts on outcomes over the post-training period difficult to interpret. Second, examining outcomes as of the follow-up survey date rather than the post-training period focuses on long-term outcomes in the logic model to the extent possible, rather than short-term fluctuations. For example, short-term jobs that respondents hold after the end of training that they no longer hold at follow-up are unlikely to be associated with increased income and reduced poverty. Examining outcomes as of the follow-up survey date is also consistent with the approach in other vocational training evaluations in the literature. Despite this change in outcomes, we also produced estimates for all the outcomes that we originally proposed in the design report—the results and conclusions were very similar to those presented in this report.

The key primary and secondary outcomes that we focus on in this report, organized by domain, include the following (see Table II.6):

- **Vocational training.** The primary outcomes in this domain are binary measures for enrollment in, and completion of, any vocational training since the start of the VTGF training to which the applicant applied and underwent random assignment. Secondary outcomes explore vocational training enrollment and completion since the start of VTGF-funded training in more detail. They include, among others, measures of experience with job attachments or internships during training, the highest vocational training level completed (a proxy for skills and knowledge gained), completion of different types of training (by skill area), and perceptions of training quality.
- **Employment and productive engagement.** The primary measure of employment is a binary measure of whether an individual held any paid job (including self-employment) at the time of the follow-up survey. Secondary measures, such as the type of employment, hours worked, and job tenure provide additional evidence on the patterns of employment at the time of the follow-up survey. The primary measure of productive engagement is a binary measure of whether an individual held any paid job or engaged in vocational training at the time of the follow-up survey. This helps account for the fact that VTGF funding might encourage recipients to train further, so that impacts on employment alone may be misleading (that is, employment could decrease in the period of the evaluation).
- **Earnings and income.** Our primary measure in the earnings and income domain is an individual's monthly earnings in the month before the follow-up survey. This is computed using information on wages for those in paid employment and profit (positive or zero) for

those in self-employment.[9] To avoid issues of selection into employment, these measures are unconditional and take the value of zero for those who are not employed. Because the ultimate goal of the VTGF subactivity is to improve total individual income (which includes earnings and other sources of income) and household income, we also measure these as additional outcomes in the domain, again focusing on the month before the follow-up survey.

- **Health behaviors.** Although the intervention did not directly target health outcomes, there was potential for unintended impacts on applicants' sexual health outcomes. In particular, most of the VTGF-funded trainings follow NTA unit standards (a set of prescribed course modules), which include HIV/AIDS modules. Attending these trainings and receiving this information may have an impact on knowledge concerning issues related to HIV/AIDS, which is important in view of the high prevalence of HIV/AIDS in Namibia. Improved knowledge of safe sex, combined with the fact that trainees are occupied with training and are focusing on their careers, may reduce the rate of unplanned parenthood among the trainees (although this effect could work in the opposite direction if the training introduces them to potential partners). We therefore include HIV/AIDS knowledge and parenthood as additional secondary outcomes.

Table II.6. Primary and secondary outcomes for the VTGF impact analysis, by domain

Domain	Primary outcomes	Secondary outcomes
Vocational training	*Since the VTGF training start date:* • Enrolled in any vocational training • Completed any vocational training	*Since the VTGF training start date:* • Enrolled in or completed any VTGF training • Experienced any job attachment or internship • Total months of job attachment or internship • Received any job placement help from a training provider • Highest level of vocational training completed • Completed different types of training (categorized by skill area) • Completed any training and passed external assessment • Completed any training and received certificate without external assessment

[9] Some respondents reported hourly or weekly wages; we converted these into monthly wages by multiplying by the number of hours worked per week and/or four weeks per month. The vast majority of those employed (about 86 percent) reported their pre-tax wages. (Because we did not gather further information on taxes, we did not differentiate between pre- and post-tax wages in the analysis; however, given the small fraction of respondents who reported post-tax wages, the findings would be similar if we were able to covert these to pre-tax wages.) Profits were measured as the money the respondent kept per week after paying for business expenses, multiplied by four.

Domain	Primary outcomes	Secondary outcomes
Employment and productive engagement	*At the follow-up survey:* • Any paid job held • Productively engaged: any paid job held or engaged in further vocational training	*At the follow-up survey:* • Type of job held (occupation) • Employed in a job related to vocational training • Type of employment (self-employment, permanent employment, or temporary employment) • Any formal job held • Average hours per week worked • Job tenure (censored at survey) • Job satisfaction
Earnings and income	*In the month before the follow-up survey:* • Earnings	*In the month before the follow-up survey:* • Gross individual income • Gross household income
Health behaviors		• HIV/AIDS awareness and knowledge • Parenthood in previous two years

E. Impact analysis approach

Given the use of random assignment, the basic method to estimate impacts is simply to compare mean outcomes between the treatment and control groups at follow-up. However, we use regression models to estimate impacts because they provide greater analytic flexibility. The regression adjustment enables us to appropriately account for a key design feature, namely separate random assignment by training (Duflo et al. 2008), and for any differences in baseline characteristics that may arise by chance, as well as to improve statistical precision.

Therefore, we conducted the impact analysis using the following ordinary least squares regression framework, which includes training fixed effects and control variables:

$$(1)\quad Y_{ijpost} = \alpha + \beta T_{ij} + \lambda_j + \gamma Z_{ijpre} + \varepsilon_{ijpost}$$

In this regression, Y_{ijpost} is an outcome for individual *i* who applied to training *j* measured at follow-up; T_{ij} is a binary indicator for applicants who were assigned to the treatment group; λ_j is a vector of training fixed effects, each of which is equal to one if individual *i* was assigned as part of training *j* and zero otherwise; Z_{ijpre} is a vector of control variables measured at baseline, and ε_{ijpost} is an error term. The vector of training fixed effects, λ_j, accounts for differences in treatment assignment proportions across trainings—this is conceptually similar to estimating the treatment-control differences separately for each training and combining them (trainings with many applicants contribute more to the total estimate than trainings with few applicants). About 3 percent of applicants applied to multiple trainings; for the purposes of the evaluation, these applicants are linked to the first included training to which they applied, so each individual is associated with only one of the training fixed effects.

The control variables Z_{ijpre} typically include demographic characteristics and baseline measures of the outcome (or related outcomes), which can improve precision and account for

any baseline differences that may have arisen by chance. However, as described in our baseline report (Borkum et al. 2015), the baseline survey for the VTGF evaluation typically was conducted after training had started; thus, most of the baseline indicators were very likely to have been affected by the VTGF trainings, and controlling for them could bias the impact estimates. Therefore, we restrict our control variables to the following: (1) demographic characteristics that would not be affected by VTGF-funded training, namely indicators for gender, having completed 12 years of education at baseline, having a parent with 12 completed years of education, and speaking Oshiwambo (the majority language) at home; and (2) a key baseline outcome that we are confident would not have been affected by VTGF-funded training, namely an indicator for having completed any vocational training at the time of the baseline survey. Some observations might be missing information for one or more of the control variables because of item non-response, reducing the sample size for the regressions with controls. To avoid this, we replace each control variable (all of which are binary) with a zero where the information is missing, and include an additional binary "missing" indicator for each control variable in the regression. These "missing" indicators are equal to one where the relevant information is missing and zero otherwise.

We focus mainly on the estimates that are regression adjusted by including relevant control variables; these are very similar to the unadjusted estimates (as expected if random assignment is successful), but are slightly more precise. In the results that we present in Chapter III, we use the coefficients from regression (1) to adjust the follow-up treatment and control means using the estimated fixed effects and coefficients on the control variables.[10]

The estimate of the parameter β is the regression-adjusted estimate of the impact of the *offer* of VTGF on the outcome measure—known as the intent to treat (ITT) impact. However, as we show in Chapter III, some training applicants randomly assigned to the treatment and control groups did not comply with those assignments: some treatment group members did not take up the offer of funding and were not trained, and some control group members received trainings. Policymakers are likely to be interested in impacts on those who are treated—those who actually benefitted from training—in addition to impacts on those the subactivity intends to treat. The estimated impacts on those who actually received training, regardless of which random assignment group they are in, are known as the treatment on the treated (ToT) impacts. To estimate ToT impacts, we use an instrumental variables (IV) regression framework (Angrist et al. 1996).

The IV framework involves two stages of estimation. In the first stage, we estimate the following regression:

[10] Because the response rate to the follow-up survey varied across the trainings included in the impact analysis, the follow-up analysis sample might not be representative of applicants to these trainings. This could limit our ability to generalize our impact estimates to the included trainings (although, regardless, we would not be able to generalize to the full set of VTGF trainings). We therefore explored the robustness of our results to the inclusion of nonresponse weights that were designed to make the weighted follow-up sample reflect the applicant sample in terms of its distribution across trainings. More specifically, we weighted each follow-up respondent by the inverse of the response rate in the training to which he or she applied, separately by treatment status. The weighted results for primary outcomes were very similar to the unweighted results (see Appendix B); therefore, we focus on presenting the simpler unweighted results.

(2) $TRAIN_{ijpost} = \alpha_2 + \beta_2 T_{ij} + \lambda_j + \gamma_2 Z_{ijpre} + \nu_{ijpost}$

where $TRAIN_{ijpost}$ is a binary indicator for applicants who received training, ν_{ijpost} is a random error term, and all other variables are as previously defined (the binary treatment indicator T_{ij} is known as the "instrument" for training receipt). In the second stage, we use the predicted values of $TRAIN_{ijpost}$ from equation (2) to estimate the following regression:

(3) $Y_{ijpost} = \alpha_3 + \beta_3 TRAIN_{ijpost} + \lambda_j + \gamma_3 Z_{ijpre} + \pi_{ijpost}$

where π_{ijpost} is a random error term and all other variables are as previously defined. The coefficient β_3 is an unbiased estimate of the ToT impact of training receipt on the outcome. We estimate separate ToT impacts for enrollment in training and completion of training by defining $TRAIN_{ijpost}$ accordingly.

F. Limitations

Although our design offers the best possible opportunity to provide rigorous evidence to inform the key research questions, we recognize that it has some limitations:

- **Limited generalizability to the full set of VTGF-funded trainings.** Strictly, the impact estimates apply only to the applicants to the included trainings, not to all VTGF applicants (as mentioned above, the included trainings only cover about half of all VTGF applicants). To the extent the characteristics of applicants to the excluded trainings or the nature of these trainings differed from those of the included trainings, the evaluation findings might not generalize to the broader VTGF sample. For some of the excluded trainings, the difference in the nature of the training may have been manifested by the absence of a control group, which may indicate weaker levels of interest among potential applicants for these trainings. The difference in the nature of some other excluded trainings may be captured by the longer durations of the trainings as they extend beyond the evaluation period. However, most of the excluded trainings were conducted by training providers that had other VTGF trainings included in the evaluation (NIMT and OVTC being exceptions), so these excluded trainings may be similar to those that were included in terms of applicant characteristics and content. Taken together though, we may want to be cautious about generalizing the impact estimates to all of the trainees who directly benefited from the VTGF subactivity.
- **Possibly limited external validity in the evolving vocational training context in Namibia.** The ITT impact estimates apply to a specific group: those who met the requirements of MCC and the VTGF training provider (for the included trainings) and were interested in applying for VTGF funding. Similarly, the ToT estimates apply to a subset of this group: those who were incentivized to receive training by the scholarship offer. Therefore, the estimates do not necessarily represent impacts on those who applied to training through other mechanisms—for example, self-funded applicants or those funded by government loans (through the Namibia Students Financial Assistance Fund). Nor do they represent impacts on broader populations, such as unemployed youth in Namibia, who could

be drawn into vocational training by other means, for example, increased funding for training through the NTF.[11] In addition, our estimates apply to the VTGF-funded program as implemented by MCC in the current vocational landscape in Namibia. Future reforms to the vocational training sector (for example, a shift toward demand-driven vocational trainings through the NTF) or general changes to the economy in Namibia could affect the impacts of future programs. Therefore, caution may be necessary in generalizing these estimates to vocational training in Namibia, although they will still be informative for policymakers planning to further develop the sector.

- **Lack of information to confirm baseline equivalence.** To produce unbiased impact estimates, the treatment and control groups must be similar in average characteristics and key outcomes at baseline, before the VTGF subactivity was introduced. Although random assignment should help ensure this, some baseline treatment-control differences might still arise by chance or because of systematic differences in the characteristics of nonrespondents to the follow-up survey in the two groups. Ideally, we would account for this by assessing the baseline similarity on key outcomes between the treatment and control follow-up analysis samples, and by controlling for any baseline differences in the impact analysis. However, as mentioned above, we do not have valid baseline measures for most outcomes because the baseline survey was conducted after training began, by which time these measures may have been affected. As a result, our ability to conduct these baseline equivalence checks is limited. Nevertheless, we show in Chapter III that there was baseline equivalence between the treatment and control analysis samples on key demographic characteristics and the main valid baseline outcome measure available, namely completion of vocational training at baseline. This provides some confidence that the sample was not unbalanced on other measures. In addition, the difference in response rates between the treatment and control groups is relatively small (less than 6 percentage points), suggesting that systematically different attrition is unlikely to substantially bias the impact estimates.
- **Limited ability to estimate differences in impacts by training characteristics.** The impacts of VTGF-funded trainings could vary based on the characteristics of the training provider (for example, whether they are public or private) or the trainings themselves (for example, the duration of training or its perceived quality). In Chapter III, we examine whether impacts differ based on these characteristics. However, these estimates should not be viewed as rigorous; the evaluation was designed to rigorously test for the overall effectiveness of training, and not the relative effectiveness of different types of training.

[11] In our baseline report (Borkum et al. 2015), we compared the characteristics of the VTGF sample to those of a sample of out-of-school individuals with a similar age and gender distribution in the National Household Income and Expenditure Survey (NHIES), which is representative of the Namibian population. The analysis showed that the VTGF sample was substantially more educated on average and had less variable household income than the broader sample, suggesting that impacts could differ if future trainings draw in less-educated individuals or those from the lowest (or highest) parts of the income distribution.

III. VTGF EVALUATION FINDINGS

In this chapter we present the findings from the VTGF evaluation. We begin by briefly summarizing the key findings from the implementation analysis that address the relevant research questions, and provide important context for the impact evaluation—the focus of this report. We then describe the characteristics of the treatment and control samples that we analyze at follow-up and confirm that the two samples were similar at baseline, the key assumption underlying the impact evaluation design. Next, we present our impact evaluation findings in each outcome domain of interest: (1) vocational training, (2) employment and productive engagement, (3) earnings and income, and (4) health behaviors. We also discuss how key outcomes compare to targets in the Monitoring and Evaluation (M&E) plan prepared by MCA-N. After presenting the intent-to-treat (ITT) estimates of the impacts of the *offer* of training in each domain, we present the treatment-on-the-treated (ToT) estimates of the impacts of *receipt* of training on key outcomes. Finally, we explore the variation in estimated impacts by applicant and training program characteristics.

A. Summary of findings from the implementation analysis

To examine the implementation of the VTGF subactivity and gauge early perceptions of its likely effects, we analyzed qualitative data collected from VTGF stakeholders toward the end of the compact, as described in Chapter II. We also analyzed additional qualitative data collected about one year after the compact from the NTA and RPL pilot participants, which focused on the RPL pilot. The key findings from these analyses were as follows (as mentioned earlier, we reported the detailed findings in Mamun et al. 2015 and Velyvis et al. 2016).

1. The VTGF grants were implemented largely as planned, but the process for identifying market demand was unclear.

The training grant component of the subactivity was implemented largely as planned, though the small market for vocational training in Namibia made it challenging to identify sufficient providers to participate and to meet initial training targets. Although the VTGF training grants were intended to target high-priority skill areas determined by market demand in Namibia, the process to determine market demand was not as scientific as planned and has not yet produced rigorous guidelines for prioritizing skill areas. Also, the industrial skills committees (ISCs)—the groups tasked with determining market demand—were not fully functioning for all industries during the compact period.

2. Components were added to the VTGF training grants during implementation to build training provider capacity and reduce dropouts among VTGF-funded trainees.

The first additional component was capacity-building grants for the training providers to improve infrastructure and equipment and to support instructor training. This was intended in part to benefit VTGF trainees, but more broadly to make longer-term changes by funding the expansion of providers' physical infrastructure (such as extra classrooms or workshops) and quality improvements, and enable them to meet the requirements for formal registration and accreditation. In addition, the capacity-building grant served as an incentive for training providers to participate in the VTGF pilot. The second additional component was a board and lodging allowance, which enabled applicants to increase attendance and reduce the number of

dropouts among VTGF-funded trainees. Trainees and training providers alike agreed that it was an important addition to the basic training grants, though the sustainability of the allowances is of concern to NTA.

3. Trainees viewed the VTGF as a unique opportunity, and both trainees and employers were positive about trainees' labor market prospects.

Grant recipients were overwhelmingly grateful for the chance to further their education, and viewed the fully funded VTGF training as a unique opportunity in the Namibian context. Trainees felt that the quality of their training was high and that they would be able to translate their experience into a positive labor market experience. The employers we interviewed had a very positive view of the training providers that received VTGF grants based on their previous experiences in recruiting graduates from these providers. However, despite the general positive perceptions of VTGF-funded training, it was challenging for providers to meet their targets for the number of employed graduates (which were specified in their service-level agreements with MCA-N or NTA), largely because of the lack of employment opportunities in Namibia. One promising practice that training providers highlighted is the inclusion of job attachments (internships) in training. Employers and training providers noted existing relationships through which they partner for job attachments or even direct hire of trainees, though it was unlikely that all VTGF-funded trainees could be accommodated through such relationships.

4. The NTA gained valuable experience in managing grants through the VTGF.

The VTGF training grants were designed in part as a pilot for the funding of training under the NTF, which will be managed by NTA. Through the VTGF experience, the NTA was able to improve its understanding of the costs of training, how to compare costs across providers and skill areas, and how to manage grants by setting and monitoring the progress of training providers toward concrete milestones. Some improvements to the VTGF management processes and templates were made over the course of implementation, and the NTA will be able to use these systems to award and manage grants under the NTF.

5. Participating employers and trainees viewed the RPL program positively, and job security and mobility increased for some pilot participants one year after the compact.

The RPL pilot in the tourism and hospitality sectors successfully granted certificates to 130 candidates; a few qualifications were granted in road construction as well. All stakeholders viewed the RPL program positively. Recipients of RPL certification through the pilot were especially happy with both the RPL program in general and the trainers/assessors who assisted them. Of the four RPL certificate recipients with whom we followed up one year after the compact, two maintained the same role, responsibilities, and salary they had prior to the RPL program; one maintained the same role and salary, but her responsibilities shifted; and the final recipient was able to expand her role and subsequently obtain a new job with a higher salary. Only one of the four recipients had pursued further training, but the other three noted that they hope to do so in the future. As of late 2015, the NTA was working to extend the RPL program under the NTF, but the process had been slow to get started.

The rest of this chapter focuses on the impact evaluation of the VTGF grants, providing rigorous evidence of their impacts on scholarship applicants. As mentioned earlier, we draw on findings from the implementation analysis wherever possible to interpret our impact estimates.

B. Baseline equivalence for the follow-up analysis sample

For the impact evaluation to produce unbiased estimates, it is necessary to assume that the treatment and control groups were similar in all respects related to the key outcomes prior to the intervention, except that the treatment group received the offer of VTGF funding. Although random assignment suggests that this assumption is likely to hold, there are two reasons why it might not in practice. First, differences between the treatment and control groups could have arisen by chance in the random assignment process ("unlucky" random assignment draws in some trainings). Second, the follow-up analysis sample differs from the sample that was originally randomly assigned because of survey nonresponse. Even if the treatment and control groups were similar at baseline, if follow-up survey nonrespondents were systematically different in the treatment and control groups, the two groups could have important differences in the follow-up analysis sample.

To address this, we would ideally compare demographic characteristics and key outcomes measured at baseline for the treatment and control groups using the follow-up analysis sample. However, as noted in Chapter II, because our baseline survey was conducted after the start of VTGF-funded training, most of the outcome indicators in this survey were likely to have been affected by the VTGF trainings. This suggests that differences between the treatment and control groups in these baseline outcome indicators could simply reflect VTGF funding rather than underlying differences that would be a concern for the design. Therefore, we limit our treatment-control comparisons to demographic characteristics and the only baseline outcome indicator that we were confident would not have been affected by training: a binary indicator for having completed any vocational training at the time of the baseline survey.

The demographic characteristics of the follow-up analysis sample show that the typical respondent in the treatment group was an unmarried female who was in her mid-20s and had completed grade 12 at baseline (Table III.1).[12] About 61 percent of the treatment group were female, the average age at baseline was about 27, and 92 percent were unmarried at baseline. These respondents tended to live in relatively large households at baseline: an average household size of 5.5 compared to the estimated Namibian average of 4.7 (Namibia Statistics Agency 2012). Almost all respondents (97 percent) in the treatment group had completed at least junior secondary school (grade 10), and about 67 percent had completed at least grade 12 (senior secondary). Parental education, a characteristic that could be correlated with respondents' outcomes, is typically lower than respondents' own level of education (though a large fraction of the sample was unable to report parental education). For example, only 18 percent of mothers and 26 percent of fathers of treatment group respondents had completed at least grade 12, compared with 67 percent of the respondents themselves. About half the treatment group reported speaking Oshiwambo, the majority language in Namibia, at home. Finally, 16 percent of the treatment group reported in the baseline survey that they had completed a vocational training course in the previous five years.

[12] In this baseline analysis, as well as the impact analyses in the rest of the chapter, the full follow-up analysis sample is composed of 642 treatment and 608 control respondents. However, because of item nonresponse, the sample sizes for specific variables are often slightly smaller. As we noted in Section II.E, for baseline variables used as regression controls, we replace each control variable (all of which are binary) with a zero for cases with missing data, and include an additional binary "missing" indicator for each regression control.

Table III.1. Baseline characteristics of the analysis sample (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Demographic characteristics						
Female	642	608	61.0	62.6	-1.6	0.535
Age at start of VTGF training:						0.487[a]
Younger than 20	628	599	4.9	4.9	0.1	
20–24	628	599	38.0	33.3	4.6	
25–29	628	599	27.6	31.8	-4.2	
30–34	628	599	15.5	17.2	-1.7	
35 or older	628	599	14.0	12.8	1.2	
Mean (years)	628	599	27.3	27.3	0.0	0.954
Unmarried	579	538	92.4	91.8	0.5	0.779
Respondent's education:						0.817[a]
Less than grade 10	579	538	3.4	4.5	-1.1	
Completed grade 10	579	538	29.2	27.7	1.5	
Completed grade 12	579	538	63.7	63.4	0.3	
Higher	579	538	3.6	4.4	-0.8	
Household size:						0.834[a]
1	579	539	3.6	3.9	-0.3	
2–5	579	539	55.7	53.7	2.1	
More than 5	579	539	40.7	42.4	-1.8	
Mean (number)	579	539	5.5	5.7	-0.2	0.459
Mother's education:						0.510[a]
Less than grade 10	426	446	66.2	63.6	2.6	
Completed grade 10	426	446	16.2	20.4	-4.1	
Completed grade 12	426	446	13.6	13.0	0.6	
Higher than grade 12	426	446	3.9	3.0	0.9	
Father's education:						0.392[a]
Less than grade 10	355	393	54.9	52.9	2.0	
Completed grade 10	355	393	18.9	16.0	2.8	
Completed grade 12	355	393	20.9	23.4	-2.5	
Higher than grade 12	355	393	5.4	7.6	-2.3	
Home language Oshiwambo[b]	642	608	49.0	50.3	-1.3	0.602
Vocational training status at baseline						
Completed any training	501	523	16.0	14.3	1.7	0.433

Source: VTGF baseline survey.

Note: All means and differences are regression adjusted for training fixed effects. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[b]Home language was asked only in the follow-up survey, but is expected to be time invariant.

Comparisons of the demographic characteristics among treatment and control group members suggest that, in the follow-up analysis sample, these groups were very similar. All the differences between the two groups that we examined are small in magnitude, and none is statistically significant. The difference in completion of vocational training at baseline, the only valid baseline outcome indicator available, is also small and not statistically significant. These findings suggest that random assignment was successful in creating treatment and control groups that were similar along these dimensions, and that nonresponse to the follow-up survey is unlikely to have disrupted this equivalence. The comparison between the treatment and control groups is therefore likely to provide an unbiased estimate of the impacts of the offer of VTGF-funded training.

C. Impacts on receipt of vocational training

The primary outcomes in the vocational training domain are enrollment in, or completion of, any vocational training between the start of the VTGF training to which each applicant applied and the follow-up survey. The VTGF training start date serves as a common reference point that can be applied to compare the outcomes of the treatment and control group in each training, even though the trainings in our sample started at different dates. The interval between the start of VTGF training and the follow-up survey varies across the follow-up sample (Table III.2) because of variation both in the duration of training and in the timing of the follow-up survey relative to the end of VTGF training (as discussed in Chapter II). For the majority of the sample (64 percent), this period was between 24 and 29 months, with a median of 28 months.

Table III.2. Timing of the VTGF follow-up survey relative to the VTGF training start date for the analysis sample (percentages, unless otherwise noted)

Duration	Full sample
13–24 months	21.4
24–29 months	63.8
30–35 months	10.6
36–41 months	4.3
Mean (months)	26.2
Median (months)	28.0
Sample size	**1,250**

1. Impacts on enrollment in training

To determine enrollment in any training since the start of the VTGF training, we compared the reported training dates for trainings that respondents reported attending in the three years before the follow-up survey to the start date of VTGF training.[13] All trainings that started on or after the VTGF training start date were included in the measure, and those that started earlier (and thus could not have been affected by the intervention) were excluded. With this measure, 59 percent of the treatment group enrolled in a training since the start of VTGF training compared to 25 percent of the control group, a statistically significant difference of 34 percentage points (Table III.3).[14] This suggests that the offer of VTGF training substantially increased the probability of training enrollment, the most proximal outcome to the intervention, which could

[13] As shown in Table III.2, about 4 percent of the sample was surveyed more than three years after the start of VTGF training. However, all these cases were for the training conducted by NATH, which lasted 20 months. Therefore, enrollment in these trainings would still be covered by the three-year reference period.

[14] To account for possible recall error in training dates, we allowed the start date of reported trainings to be up to three months earlier than the VTGF training start date and still be included in our enrollment measure. Because we used the same definition in the treatment and control groups, the estimated impacts are valid even if this approach slightly overestimates the estimated treatment and control means. Using a stricter definition that allows the start date of reported trainings to be up to only one month earlier than the VTGF training start date, the regression-adjusted means were only slightly lower (54 percent in the treatment and 24 percent in the control group), and the estimated impact was similar (30 percentage points).

translate into impacts on less-proximal outcomes such as employment and earnings if the trainings are effective.

Table III.3. Impacts on enrollment in and experiences during vocational training (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Primary outcome						
Enrolled in any training since the start of VTGF training	638	605	58.6	25.1	33.5	0.000***
Secondary outcomes						
Enrolled in VTGF training program, based on provider and course	638	605	54.0	16.6	37.5	0.000***
Enrolled in VTGF training program, based on receipt of MCA funding	638	605	48.4	13.6	34.8	0.000***
Enrolled in VTGF training program, based on provider, course, and receipt of MCA funding	638	605	46.1	11.1	34.9	0.000***
Enrolled in any training in previous 3 years	641	605	71.2	33.2	37.9	0.000***
Experienced any job attachment or internship	634	598	21.6	9.4	12.3	0.000***
Experienced any paid job attachment or internship	630	595	7.2	4.3	3.0	0.047**
Total duration of job attachments or internships:						0.000***[a]
None	626	593	80.8	91.1	-10.4	
1–3 months	626	593	13.7	7.4	6.3	
4 or more months	626	593	5.5	1.5	4.0	
Mean (weeks)	626	593	0.7	0.3	0.4	0.000***
Received job placement help from any training provider	626	596	5.9	2.5	3.4	0.011**

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

To better understand the extent to which the enrollment rates were driven by enrollment in VTGF trainings, we used information about the trainings that the respondent reported attending to identify such trainings. Matching the reported training provider name and course name to the list of VTGF trainings suggests that about 54 percent of the treatment group participated in these trainings, whereas using respondents' reported receipt of MCA-N funding for training suggests that 48 percent of the treatment group participated (Table III.3). Combining the two—the most conservative approach to account for possible recall error—suggests that 46 percent of the treatment group participated in VTGF trainings. These VTGF training enrollment rates were lower in the control group (17, 14, and 11 percent, respectively), with the differences all large

and statistically significant (38, 35, and 35 percentage points, respectively).[15] The similarity between the enrollment rate in VTGF training and overall training described above, especially for the treatment group, suggests that most of the treatment-control difference in training enrollment was driven by VTGF trainings.

The training enrollment rate of 59 percent reported by the treatment group, though much higher than the rate in the control group, suggests that a substantial fraction of the treatment group did not take up the offer of training. To determine the extent to which this might reflect recall error in reported training dates in the follow-up survey (which would affect our measure of enrollment because we included only trainings that trainees reported starting on or after the VTGF training start date), we constructed a broader alternative measure that ignored these dates and simply reflects enrollment in *any* training in the three years prior to the follow-up survey. The regression-adjusted enrollment rate in the treatment group was 71 percent under this measure compared to 33 percent in the control group, a statistically significant difference of 38 percentage points (Table III.3). Importantly for our impact estimates, the estimated difference is very similar to that under the previous measure based on reported training dates, which suggests that our impact estimates for training enrollment are not sensitive to this type of recall error. In terms of the enrollment rate itself, the estimated treatment mean is higher than the previous measure but still well below 100 percent, which suggests that recall error in training dates can at best only partly explain the relatively low training rate in the treatment group.[16]

The low training rate in the treatment group therefore seems to be driven largely by treatment group members declining the offer of VTGF training and hence not participating in any training. The random assignment information that MCA-N obtained from training providers suggests that there were several cases of declined offers among those initially assigned to treatment. In most cases, some or all of these individuals were replaced by individuals initially assigned to control, typically by working down the randomly ordered list of applicants. For the purposes of our analysis, we included both those who declined offers and any randomly ordered replacements as treatment group members (as described in our design report, we view this effectively as the training provider having selected a different treatment cutoff point on the randomly ordered list of applicants). This approach was necessary to preserve the validity of the random assignment design: because the decision to decline the offer was nonrandom, we had to include those who declined the offer as treatment applicants. However, the presence of these applicants in our sample could drive down the overall treatment enrollment rate.

[15] The non-negligible rate of VTGF training enrollment for the control group suggests that some of its members may have participated in VTGF trainings by obtaining alternative sources of funding, or may even have obtained MCA-N funding by applying to another VTGF training and being randomly assigned to treatment.

[16] We also explored whether respondents might have had difficulty recalling training participation itself, by examining whether enrollment rates were lower for trainings that were shorter or ended less recently relative to the follow-up survey (one might expect enrollment in these trainings to be more susceptible to recall error). We did find some evidence of lower enrollment rates for these trainings, though the differences were relatively small, and we cannot rule out that they simply reflect differences in the characteristics of these trainings. The relatively small differences suggest that recall error in training participation is unlikely to explain a large part of the low enrollment rate among treatment group members.

Although these recorded declined offers alone are not sufficient to fully explain the relatively low enrollment rate in the treatment group, we cannot rule out that there may have been subsequent declined offers that were not recorded. This could explain both the low training rate in the treatment group and the non-negligible rate in the control group—especially for VTGF trainings, for which members of the control group may have been used as replacements. In Section G of this Chapter we produce ToT impact estimates that address declined offers (and take-up of offers by replacements) by estimating the impacts of training on those who actually received it.

We also examined several secondary outcomes related to training, focusing on experiences with job attachments or internships and job placement assistance (the VTGF program did not provide any specific support for these services, so they largely reflect providers' existing practices). About 22 percent of the treatment group reported having participated in a job attachment or internship as part of a vocational training, though only 7 percent reported having participated in a paid attachment or internship (Table III.3). These rates are both significantly higher than in the control group (by 12 and 3 percentage points, respectively), but were relatively low overall. Therefore, on average, both the treatment and the control group experienced less than one month of job attachment. This is consistent with the findings from the implementation analysis that, although job attachments are one avenue through which some VTGF training providers seek to improve the employment prospects of trainees, not all providers offered attachments, and those that did could often not find enough attachments to accommodate all trainees. In addition, only 6 percent of the treatment group reported having received job placement assistance from a training provider. Although this is significantly higher than in the control group (by about 3 percentage points), it suggests that these job placement efforts did not benefit most trainees.

2. Impacts on completion of training

Our second primary measure in the vocational training domain is completion of any training since the start of the VTGF-funded training, which is similar to the training enrollment measure but uses self-reported information on whether the individuals completed the vocational training courses in which they enrolled. The completion rate was 46 percent in the treatment group compared to 17 percent in the control group, a statistically significant difference of 29 percentage points (Table III.4). Because training enrollment in the treatment group was 59 percent, this suggests that about 13 percent of the treatment group (or 22 percent of the treatment group applicants who enrolled in training) dropped out before completing the training.[17]

As in our analysis of enrollment, to estimate impacts on completion of VTGF trainings specifically, we used information about the provider and course type and receipt of MCA-N funding for trainings that the respondent reported having completed after the VTGF training start date. Based on these measures, 39 to 43 percent of the treatment group completed a VTGF

[17] Respondents who dropped out reported a variety of reasons for doing so, the most common being an inability to afford training. Although the treatment group was provided with scholarships and a board and lodging allowance, this suggests that there may have been other unforeseen costs, such as for transport or equipment, that posed a financial burden on some trainees. However, because the number of respondents who reported reasons for dropouts in the follow-up survey is low, our estimates of the percentages dropping out for various reasons are imprecise, and we do not focus on these estimates in more detail.

training compared with 10 to 13 percent of the control group (depending on the measure), which resulted in a difference similar to that of the overall measure of training completion (29 to 31 percentage points). Again, the similarity between these rates and the overall completion rates suggests that most of the differences in training completion were driven by VTGF trainings.

Table III.4. Impacts on completion of vocational training since the start of VTGF training (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Primary outcome						
Completed any training since the start of VTGF training	631	597	45.5	16.8	28.7	0.000***
Secondary outcomes						
Completed VTGF training program, based on provider and course	631	596	43.3	12.7	30.6	0.000***
Completed VTGF training program, based on receipt of MCA funding	629	594	40.5	11.5	29.0	0.000***
Completed VTGF training program, based on provider, course, and receipt of MCA funding	629	594	38.9	10.1	28.8	0.000***
Highest level completed:						0.000***[a]
None	595	589	57.2	85.0	-27.8	
Level 1	595	589	10.0	4.0	5.9	
Level 2	595	589	10.1	4.9	5.2	
Level 3	595	589	7.8	4.5	3.3	
Level 4	595	589	10.7	0.6	10.1	
Level 5 or higher	595	589	2.4	0.3	2.1	
No level/short course	595	589	1.9	0.7	1.2	
Skill area or trade completed[b]:						
Hospitality and tourism	638	601	26.0	5.9	20.1	0.000***
Office administration	638	601	8.4	3.7	4.8	0.001***
Carpentry and joinery	638	601	3.2	1.6	1.6	0.067*
Bricklaying and plastering	638	601	2.8	1.7	1.1	0.195
Heavy construction machinery operation	638	601	2.4	1.8	0.6	0.330
Other[c]	638	602	2.5	2.2	0.2	0.805
Completed any training and passed external assessment	613	590	25.3	8.4	16.9	0.000***
Completed any training and received certificate without external assessment	628	596	17.8	6.4	11.4	0.000***

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[b]Because respondents could have completed multiple training programs, categories can add up to more than 100 percent.

[c]Includes building, maintenance and renovation; plumbing and pipefitting; boiler-making; radio and tv mechanics; automotive electrical and electronics; and other skill areas.

We also explored several other features of the completed trainings as secondary outcomes. Accredited trainings in Namibia are categorized by the Namibia Qualifications Authority (NQA) into levels from 1 to 10, representing different levels of difficulty in learning and the application

of knowledge and skills. The trainings completed by the treatment group were spread almost evenly among levels 1 to 4, with relatively few at level 5 or higher (Table III.4). Completion of all levels of training was higher in the treatment group compared to the control group, with the largest difference for level 4 trainings (11 percent in treatment and less than 1 percent in control).[18] The most common skill areas or trades completed by the treatment group were hospitality and tourism (26 percent) and office administration (8 percent). The dominance of these skill areas reflects the fact that several VTGF trainings in our sample with large numbers of applicants covered these areas, especially hospitality and tourism. Finally, about 25 percent of the treatment group reported that they completed a training program by passing an external assessment at the end of the program; almost all those who took these assessments passed them, but many providers did not offer them A further 18 percent of the treatment group reported that they received a certificate without an external assessment, accounting for most of the remaining completers.

3. Perceived quality of training

To complement our estimates of the impacts of VTGF funding on training participation, we also conducted a descriptive analysis of perceptions of various dimensions of training quality by participants (regardless of whether they were in the treatment or the control group). These perceptions were generally very positive, consistent with the qualitative findings from the trainee focus groups that we conducted as part of the implementation analysis. Only a small percentage of those who participated in any training since the start of VTGF training reported having attended a training of low quality (fair or poor) in terms of instructors, written materials, tools, or overall quality (Table III.5).[19] The same was true when we restricted the sample to those who had participated in a VTGF training specifically. This suggests that among those who participated in training, the quality of training was almost uniformly perceived as high (good or excellent).

D. Impacts on employment and productive engagement

The primary outcome related to employment is a binary indicator for whether an individual held any paid job (including self-employment) at the time of the follow-up survey. About 44 percent of the treatment group was employed at follow-up compared to 50 percent of the control group, a *negative* difference of 6 percentage points, though it is statistically significant at only the 10 percent level (Table III.6). For individuals who were not employed, we also asked whether they would have been available for work if they had been offered a job in the previous 12 months, which enabled us to classify them as unemployed (if they were available for work) or out of the labor force (if they were not).[20] Based on this definition, about 46 percent of the

[18] The percentage of the treatment sample that completed a training based on this level measure (43 percent) is slightly different from that reported earlier (46 percent). This discrepancy is due to item nonresponse for the level of training: the two samples are slightly different.

[19] To simplify the analysis, we focused on the highest reported quality across trainings for those who attended multiple trainings. However, the vast majority of the sample attended only one training (if any), so the results would have been very similar if we had examined all trainings.

[20] This is the broad definition of unemployment, common in southern Africa, which considers only job *availability* and not job *search* (the strict definition would require both). However, our estimate of broad unemployment may not be precise, because the reference period for the availability for employment was the 12 months prior to the follow-

treatment group was unemployed, and about 6 percent was out of the labor force; these rates were not significantly different from those in the control group.[21]

Table III.5. Highest perceived quality of vocational training, among those who participated in training (percentages)

	Participated in any training		Participated in VTGF training	
	Sample size	Mean	Sample size	Mean
Quality of instructors:				
Excellent	508	42.1	361	42.7
Good	508	51.4	361	51.2
Fair	508	5.5	361	5.3
Poor	508	1.0	361	0.8
Quality of written materials:				
Excellent	510	38.0	360	40.6
Good	510	54.1	360	53.1
Fair	510	6.3	360	5.3
Poor	510	1.6	360	1.1
Quality of tools and equipment:				
Excellent	506	37.5	358	40.8
Good	506	53.4	358	51.7
Fair	506	6.7	358	5.9
Poor	506	2.4	358	1.7
Overall quality of program:				
Excellent	509	39.9	361	42.7
Good	509	53.6	361	51.0
Fair	509	5.3	361	5.5
Poor	509	1.2	361	0.8

Source: VTGF follow-up survey.

Note: Sample sizes vary because of item nonresponse.

The primary outcome measure for productive engagement is a binary indicator for whether an individual held a paid job *or* was engaged in further vocational training at the time of the follow-up survey. About 54 percent of the treatment group were productively engaged at follow-up compared to 58 percent of the control group, a small difference that is not statistically significant (Table III.6). Further analysis suggests that 14 percent of the treatment group were engaged in training at follow-up compared to 9 percent of the control group, a significant difference of 5 percentage points. The small offsetting impacts on employment (negative) and training (positive) at follow-up—which resulted in no net impact on productive engagement—suggest that the treatment group was more likely than the control group to take further training courses rather than to enter the job market immediately.

up survey rather than as of the survey date. Nevertheless, this measure is broadly indicative of labor force participation at the time of the follow-up survey.

[21] Because of item nonresponse to the question on employment availability, the percentages of the treatment group that were employed, unemployed, and out of the labor force does not add up to 100 percent. Therefore, the sample for the unemployment and out-of-the-labor-force measures is slightly different (smaller) from that for employment.

Table III.6. Impacts on employment and productive engagement at the time of the follow-up survey (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Primary outcomes						
Employed in a paid job	633	598	44.2	50.3	-6.1	0.069*
Engaged in any productive activity[a]	635	597	53.5	57.5	-3.9	0.242
Secondary outcomes						
Other employment status:						
Unemployed[b]	576	580	46.1	41.3	4.9	0.157
Not in the labor force	576	580	6.1	6.0	0.1	0.929
Enrolled in any vocational training	641	607	14.2	9.1	5.1	0.013**

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]Employed or enrolled in any vocational training.

[b]Broad definition: available to work if offered job in previous 12 months (does not include job search).

We also explored several features of employment at the time of the follow-up survey, as secondary outcomes (Table III.7):[22]

- The most common type of jobs in the treatment group were office administrator (6 percent), tour guide or chef (4 percent), and housekeeper or cleaner (3 percent) (Table III.7). However, because respondents reported a wide variety of job types, which were difficult to interpret and classify into broader categories, the "other" category was by far the most common (23 percent of the treatment group). The "other" category is more common in the control than the treatment group, likely because of the overall difference in employment; reports of other job types were similar in the two groups.
- About 12 percent of the treatment group reported that they were employed in a job related to their vocational training. Although this rate is significantly higher than the 3 percent in the control group (likely reflecting the higher training rate in the treatment group), it is low relative to the percentage of the treatment group that was employed.[23]

[22] We focused on the job held at the follow-up survey rather than other jobs held since the end of training because this is aligned with our primary employment outcome. However, for the vast majority of those employed at follow-up (almost 90 percent) this was their only job in the three years prior to the follow-up survey.

[23] This question applied to all jobs in the three years before the survey and was not restricted to the job held at the time of the follow-up survey. However, because the vast majority of respondents held only one job (if any) over this period, the estimated means should not be substantially affected. In addition, this question was added to the survey only partly through data collection and was not asked of the full sample. We also considered the possibility of matching the reported job type to the skill area of training to obtain a more precise measure for the broader sample. However, because of a large number of "other" responses to the question on job type (many of which were difficult

- The most common type of employment in the treatment group at the follow-up survey was permanent employment (20 percent), followed by temporary employment (17 percent) and self-employment (6 percent), all of which were similar in the control group.
- The rate of formal employment, defined as employment at a workplace or business that was registered for tax purposes, was 31 percent in the treatment group and almost identical in the control group.
- On average, the treatment group worked about 20 hours per week, but the vast majority either did not work at all (56 percent) or worked a full 40 hours per week (39 percent). These patterns of hours worked were very similar in the control group.
- Average tenure in the job held at follow-up (censored at the follow-up survey date) was about 10 months in the treatment group, and 21 percent of the treatment group had been in their job for more than 12 months. Average tenure in the treatment group was significantly lower than in the control group (a difference of 3 months), driven by a lower percentage with more than 12 months of tenure (a difference of 11 percentage points).
- About 24 percent of both the treatment and the control group held a job with which they were satisfied or very satisfied at the time of the follow-up survey, representing about half of those who were employed.

Overall, the vast majority of these secondary employment outcomes were not substantively different between the treatment and control groups, which again suggests that the offer of VTGF funding had little impact on employment at follow-up.

Finally, although our analysis focuses mainly on comparisons between the treatment and control groups to estimate impacts, we also conducted a descriptive analysis of the employment patterns for those who completed VTGF training (regardless of whether they were in the treatment or the control group). Of the total follow-up sample, 25 percent completed a VTGF training, based on matching of the training provider and course name and reported receipt of MCA-N funding (Table III.8). However, only about half this sample—comprising 12 percent of the total sample—completed a VTGF training *and* were employed at follow-up. Our descriptive analysis focused on this 12 percent sample, which consists of 146 individuals.

to interpret), this exercise would likely be prone to substantial error. Therefore, we rely on the suggestive evidence provided by the measure reported in Table III.7.

Table III.7. Impacts on features of employment at the time of the follow-up survey (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Secondary outcomes						
Type of job held:						0.185[a]
Not employed in a paid job	633	598	50.0	55.9	5.8	
Office administrator	633	598	6.0	4.3	1.7	
Tour guide or chef	633	598	3.5	1.7	1.8	
Housekeeper or cleaner	633	598	2.9	3.6	-0.8	
Builder, bricklayer, or construction worker	633	598	2.6	2.3	0.3	
Cashier	633	598	2.0	2.4	-0.3	
Carpenter or joiner	633	598	1.9	2.3	-0.5	
Sales consultant	633	598	1.8	3.2	-1.4	
Other	633	598	23.4	30.1	-6.7	
Job is related to vocational training	485	357	11.5	2.8	8.7	0.000***
Type of employment:						0.321[a]
Not employed in a paid job	632	597	50.3	56.2	5.9	
Self-employment	632	597	6.2	7.5	-1.4	
Permanent employment	632	597	20.3	23.6	-3.3	
Temporary employment	632	597	17.3	18.5	-1.2	
Employed in any formal job[b]	575	522	31.0	31.1	-0.1	0.971
Hours per week worked:						0.108[a]
0 hours	626	589	56.3	50.5	5.9	
1–19 hours	626	589	0.8	2.9	-2.0	
20–29 hours	626	589	1.8	1.2	0.6	
30–39 hours	626	589	2.4	3.7	-1.2	
40 or more hours	626	589	38.6	41.8	-3.2	
Mean (hours)	626	589	19.7	22.4	-2.7	0.107
Job tenure[c]:						0.004***[a]
0 months	620	587	59.1	52.1	7.0	
1–6 months	620	587	11.5	8.3	3.2	
7-12 months	620	587	8.2	7.5	0.7	
>12 months	620	587	21.2	32.2	-11.0	
Mean (months)	620	587	9.6	12.4	-2.8	0.027**
Satisfied or very satisfied with job[d]	629	595	24.0	23.8	0.2	0.952

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[b]Defined as a workplace or business that is registered for tax purposes.

[c]Censored at the survey date.

[d]Available options were very satisfied, satisfied, dissatisfied, and very dissatisfied.

Table III.8. Characteristics of employment among VTGF-funded trainees at the time of the follow-up survey (percentages, unless otherwise indicated)

	Sample size	Mean
Completed VTGF-funded training program, based on provider, course, and receipt of MCA funding	1,223	24.9
Completed VTGF-funded training program and employed	1,236	11.8
Among those who completed a VTGF-funded training and were employed		
Job is related to vocational training	104	32.7
Type of employment:		
Self-employment	145	11.7
Permanent employment	145	43.4
Temporary employment	145	44.1
Employed in any formal job[a]	104	74.0
Hours per week worked:		
1–19 hours	140	2.1
20–29 hours	140	2.9
30–39 hours	140	5.7
40 or more hours	140	89.3
Mean (hours)	140	46.5
Job tenure[b]:		
<1 month	138	4.3
1–6 months	138	35.5
7–12 months	138	13.8
>12 months	138	46.4
Mean (months)	138	20.3
Satisfied or very satisfied with job[c]	144	47.2

Source: VTGF follow-up survey.

Note: Sample sizes vary because of item nonresponse.

[a]Defined as a workplace or business that is registered for tax purposes.

[b]Censored at the survey date.

[c]Available options were very satisfied, satisfied, dissatisfied, and very dissatisfied.

The patterns of employment for this sample were broadly similar to those for the full treatment and control samples described earlier, ignoring those who were not employed. About a third were employed in a job relevant to their vocational training (though, as discussed earlier, nonresponse for this measure was high) (Table III.8). Permanent employment (43 percent) and temporary employment (44 percent) were much more common than self-employment (12 percent), and 74 percent of the sample were employed in a formal job. The vast majority of the sample worked at least 40 hours a week, with an average of about 47 hours. Almost half had been in their jobs for more than 12 months, and average tenure (censored at the survey date) was about 20 months. Finally, almost half were satisfied or very satisfied with their job.

E. Impacts on earnings and income

Given the limited impacts on employment, we do not expect large impacts on earnings and income; nevertheless, we examined impacts on several outcomes in this domain. Our primary outcome is monthly earnings, defined as wages or profits from self-employment, in the month prior to the follow-up survey (earnings are zero for individuals who are unemployed). About 59

percent of the treatment group had no earnings in this month,[24] and only about 25 percent earned more than N$2,000 (about US$160 at the average exchange rate in the follow-up survey period) (Table III.9). Consistent with the findings for employment, neither the overall distribution of earnings nor mean earnings were statistically different between the treatment and control groups.

Table III.9. Impacts on earnings and income in the month prior to the VTGF follow-up survey (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Primary outcome						
Mean gross earnings from self-employment or wages (N$)[a]	594	557	1,328	1,400	-72	0.632
Secondary outcomes						
Gross earnings from self-employment or wages:						0.326[b]
None	594	557	59.2	54.2	5.0	
N$1–1,000	594	557	4.2	4.5	-0.3	
N$1,001–2,000	594	557	11.5	16.6	-5.1	
N$2,001–4,000	594	557	14.7	14.6	0.1	
N$4,001 or more	594	557	10.3	10.0	0.2	
Total gross individual income[c]:						0.157[b]
None	587	545	21.0	21.3	-0.3	
N$1–1,000	587	545	32.3	25.8	6.5	
N$1,001–2,000	587	545	14.9	19.6	-4.7	
N$2,001–4,000	587	545	18.4	18.4	0.0	
N$4,001 or more	587	545	13.5	15.0	-1.4	
Mean (N$)[a]	587	545	1,887	2,366	-479	0.034**
Monthly gross household income could not be estimated	642	608	46.0	47.1	-1.1	0.726
Monthly gross household income[d]:						0.708[b]
None	343	325	5.5	8.1	-2.6	
N$1–1,000	343	325	18.7	16.6	2.1	
N$1,001–2,000	343	325	18.4	18.4	0.0	
N$2,001–4,000	343	325	28.1	24.8	3.3	
N$4,001–6,000	343	325	14.5	13.6	0.9	
N$6,001 or more	343	325	14.8	18.5	-3.8	
Mean (N$)[a]	343	325	3,345	4,119	-773	0.047**

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]Top-coded at the third standard deviation above the mean of non-zero responses to account for outliers.

[b]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[c]Includes income from earnings and other sources.

[d]Estimated as the sum of earnings, respondent's other income, and income from other household members.

[24] The percentage of the treatment group with zero earnings at the follow-up survey (59 percent) is larger than the percentage that was not employed (56 percent). This is largely because the sample for the former excludes several individuals who were employed, but for whom the information required to estimate average earnings was unavailable. This results in a smaller sample, in which a higher proportion of individuals have zero earnings, which suggests that the proportion of individuals with zero earnings in Table III.9 may be overestimated. However, given the relatively small scale of this issue, the effect on mean earnings is likely be limited. Further, this issue occurs at similar rates in the treatment and control groups, which suggests that the comparison in earnings is still valid.

The secondary outcomes in this domain are individual income and household income, both measured in the month prior to the follow-up survey, which are measures of overall individual and household well-being. Individual income is the combination of individual earnings and individual income from other sources, such as government grants and money from family. Most individuals who were not earning income from employment seem to have had other sources of income, because only about 21 percent of the treatment group reported zero income (compared to 59 percent reporting zero earnings) (Table III.9). The overall distribution of total individual income in the month prior to the survey was not significantly different in the treatment and control groups, though the mean was significantly lower in the treatment group (a difference of N$479). The impact on mean individual income is, however, sensitive to the inclusion of a few large values at the top of the income distribution.[25]

Our measure of monthly household income includes the individual income reported above, as well as income from all other household members in the month prior to the follow-up survey. However, many respondents to the survey—nearly half the respondents in both the treatment and the control group—were unable to estimate income from other household members, and we were therefore unable to calculate household income for a large fraction of the sample (Table III.9). This high level of nonresponse suggests that our estimates of household income may be inaccurate for the full sample if the nonrespondents were systematically different from the respondents (for example, if nonrespondents tended to be poorer, the means would be overestimated). However, because the level of nonresponse is almost identical in the treatment and comparison groups, the pattern of nonresponse is likely to be similar, and therefore the estimated impacts can still be valid (albeit less precise because of lower sample size). Again, the distribution of mean monthly household income was similar in the treatment and control groups, though the mean was significantly lower in the treatment group (by N$773), reflecting the difference in mean individual income mentioned above. Similar to individual income, however, the impact on mean household income is sensitive to the inclusion of a few large values.[26]

F. Impacts on health behaviors

As mentioned earlier, we examined impacts on several health behaviors that were not directly targeted by the intervention but might exhibit unintended impacts. Because trainees might have been exposed to prescribed HIV/AIDS modules during vocational training, we examined impacts on respondents' awareness of HIV/AIDS and knowledge of condom use. About 83 percent of the treatment group had heard of AIDS, and 61 percent thought that using a condom correctly and consistently could reduce the risk of HIV a lot or completely (as opposed

[25] This is true even though we accounted for outliers by top-coding at the third standard deviation above the mean of non-zero responses. With a less conservative approach to accounting for outliers—top-coding at the 95th percentile of non-zero responses—the estimated impact decreases in magnitude to negative N$190 and is no longer statistically significant.

[26] Again, we accounted for outliers by top-coding at the third standard deviation above the mean of non-zero responses. With a less conservative approach of top-coding household income at the 95th percentile of non-zero responses, the impact on mean household income decreases in magnitude to negative N$336 and is no longer statistically significant.

to a little or not at all) (Table III.10). These rates were very similar in the control group, and the differences are not statistically significant.

Table III.10. Impacts on health behaviors (percentages, unless otherwise indicated)

	Treatment sample size	Control sample size	Treatment mean	Control mean	Difference	*p*-value
Secondary outcomes						
HIV/AIDS awareness:						
Heard of AIDS	641	608	82.5	82.6	-0.2	0.949
Believe that condoms can reduce the risk of HIV a lot/completely[a]	639	608	60.8	61.8	-1.0	0.748
Children conceived by female respondents:						
Became pregnant in previous 24 months	381	389	16.6	15.6	1.0	0.756
Gave birth more than 9 months after VTGF training start date	381	389	10.9	12.2	-1.2	0.677
Children conceived by male respondents:						
Impregnated a woman in previous 24 months	258	218	22.0	14.7	7.3	0.082*
Fathered a child more than 9 months after VTGF training start date	251	215	10.4	5.5	4.9	0.097*

Source: VTGF baseline and follow-up survey.

Note: All means and differences are regression adjusted for training fixed effects and binary control variables for gender (HIV/AIDS awareness only), having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]Respondents were asked, "If condoms are used correctly and consistently, how much can they decrease the risk of getting HIV, the virus that causes AIDS: not at all, a little, a lot, or completely?"

We also examined reported pregnancies and parenthood among VTGF applicants, which could be affected by training through several mechanisms (for example, trainees are focused on their future careers and delay parenthood, or meet potential partners during training). Our survey questions focused on pregnancies in the 24 months prior to the follow-up survey. For most applicants, this interval will not capture the full period since the start of VTGF training (Table II.2). However, because the vast majority of respondents were surveyed within 29 months of the start of training and it might take some time for training to influence these behaviors, this window should capture most of the relevant impacts. For reported births, we used the child's birth date to ignore any births in this window that occurred within 9 months after the start of VTGF training (and hence could not have been affected by the offer of training), thereby improving the accuracy of this measure.

About 17 percent of female applicants in the treatment group reported being pregnant in the 24 months prior to the follow-up survey, and 11 percent reported having given birth to a child at least 9 months after the start of VTGF training (Table III.10). These rates were similar and not statistically different in the control group. For male applicants, 22 percent of the treatment group reported having impregnated a woman, and 10 percent reported having fathered a child over the relevant reference periods. These rates were higher than in the control group (by 7 and 5 percentage points, respectively), but the differences were only marginally significant at the 10

percent level. Differences for the pooled female and male samples were small and not statistically significant (not shown). Overall, there is no strong evidence that the offer of VTGF training substantially affected these health behaviors, despite the positive impacts on training participation.

G. Comparison of outcomes to monitoring and evaluation targets

We can also use the VTGF follow-up survey data to compare the outcomes of VTGF-funded trainees to targets in the M&E plan produced by MCA-N (MCA-N 2014a). The M&E plan suggests that, by the end of the compact, the VTGF funded a total of 1,500 trainees—close to the target of 1,638. The targeted training completion rate for these trainees was 85 percent. Restricting the evaluation sample to respondents who reported participating in VTGF trainings using MCA-N funding, the estimated completion rate was 83 percent. Although the evaluation sample is not necessarily representative of all VTGF trainees, this provides suggestive evidence that the completion targets were close to being met. In contrast, employment and earnings for our sample of VTGF-funded trainees were substantially lower than the targets in the M&E plan. The target for employment was 75 percent whereas about 45 percent of the VTGF-funded sample were employed; the target for average monthly earnings was N$2,862 whereas the average earnings in the VTGF-funded sample were about $1,327. Again, these numbers are not directly comparable because our sample is not representative of all VTGF-funded trainees, but they do suggest that employment and earnings may have fallen short of targets.

H. Treatment on the treated impacts

All the estimates presented so far represent the impacts of the *offer* of VTGF training (ITT impacts); in this section, we focus on the impacts of *receiving* training on those who received it (ToT impacts). To estimate ToT impacts, we effectively adjust the ITT impacts by dividing them by the difference in the rate of training receipt (defined as either enrollment or completion) between the treatment and control groups. This adjustment is substantial in this context because, as we showed earlier, a substantial fraction of the treatment group did not take up the offer of training, and a non-trivial fraction of the control group participated in training. Intuitively, the adjustment accounts for the fact that some in the treatment group do not receive training (and have a zero effect), while some in the control group do receive training (and hence have a non-zero effect). Therefore, the simple comparison of those assigned to treatment and control (the ITT estimate) underestimates the impacts for those actually receiving training (the ToT estimate) and must be inflated to recover this effect. In practice, we conduct these ToT estimates in an instrumental variables (IV) regression framework (Angrist et al. 1996), which enables us to control appropriately for covariates and estimate correct standard errors.

We present ToT impacts of receipt of VTGF training, focusing on the primary outcomes related to employment, productive engagement, and earnings. To produce these estimates, we use information on receipt of VTGF trainings—based on reported training provider, course, and receipt of MCA-funding—to adjust for differences in enrollment or completion of VTGF trainings. Specifically, we used the IV regression framework described earlier to estimate the impacts of (1) enrollment in VTGF training, and (2) completion of VTGF training.[27] These ToT

[27] The results were very similar using alternative definitions of enrollment in or completion of VTGF training that rely on reported training provider and course name or receipt of MCA funding only. We also estimated another set

impacts represent the impacts of the receipt of VTGF-funded training on a specific population, namely, those who were induced to enroll in or complete training by the offer of VTGF funding (Imbens and Angrist 1994).[28]

There were statistically significant ToT impacts of enrollment in VTGF training since the VTGF start date on employment and enrollment in vocational training at follow-up (Table III.11). Those who were enrolled in VTGF training were 17 percentage points less likely to be employed than those who were not (significant at the 10 percent level), but 14 percentage points more likely to be enrolled in further vocational training (significant at the 5 percent level). The net ToT impact of VTGF training enrollment on productive engagement at follow-up was negative 12 percentage points but not statistically significant, and the impact on earnings was small in magnitude and also not statistically significant. This pattern was similar for the ToT impacts of VTGF training completion. In particular, those who completed VTGF trainings were less likely to be employed and more likely to be engaged in further training at follow-up than those who did not complete these trainings, but productive engagement and earnings were similar. The significant ToT impacts on employment and vocational training at the follow-up survey date were slightly larger for training completion than for training enrollment (negative 23 and positive 18 percentage points, respectively). As with the ITT impacts, these impacts suggest that those who participated in training tended to substitute additional training for employment at the time of the follow-up survey.

Table III.11. Treatment on the treated impact estimates (percentages, unless otherwise indicated)

	Employment and productive engagement			Earnings
	Employed at follow-up	Enrolled in training at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
ITT impact	-6.1	5.1	-3.9	-72
[*p*-value]	[0.069*]	[0.013**]	[0.242]	[0.632]
ToT impacts				
Impact of enrolling in VTGF training	-17.3	14.1	-11.5	-249
[*p*-value]	[0.065*]	[0.015**]	[0.221]	[0.543]
Impact of completing VTGF training	-23.2	18.1	-15.8	-448
[*p*-value]	[0.046**]	[0.012**]	[0.171]	[0.370]
Sample size	1,206–1,231	1,221–1,248	1,206–1,232	1,128–1,151

Source: VTGF baseline and follow-up survey.

Note: All ToT estimates were conducted in an instrumental variables regression framework. The first-stage F-statistic was between 155 and 166 for training enrollment and between 114 and 120 for training completion; the *p*-value for this statistic was <0.001 in all cases. All estimates are regression adjusted for training fixed

of ToT impacts: impacts adjusted for enrollment in and completion of *any* training since the start of the VTGF training. The results were very similar to those for receipt of VTGF trainings shown in Table III.11.

[28] Some individuals who received VTGF training would have done so even if they were not offered VTGF funding. Although we cannot identify these individuals in the data, we can estimate that they compose about one quarter of those who received VTGF training (following Angrist et al. 1996). The ToT estimates apply to the remaining three-quarters, who were induced to receive the training by the offer of funding.

effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Impact is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

ITT = intent to treat; ToT = treatment on the treated.

I. Subgroup analysis

1. Impacts for subgroups defined by applicant characteristics

One of the key research questions for the evaluation is whether the impacts of VTGF training differed for subgroups defined by the characteristics of the applicants. We explored the variation in ITT impacts on primary outcomes based on the following applicant characteristics: (1) gender (females versus males); (2) pre-VTGF education level (those who had completed at least 12 years of formal education versus those who had not); (3) parental education (those who had one parent who had completed at least 12 years of formal education versus those who did not); and (4) home language (those who spoke Oshiwambo, the majority language, at home, versus those who did not).[29] We focused on primary outcomes to limit the "multiple comparisons" problem, which is a particular concern here because we examine impacts for several subgroups. For each subgroup characteristic, we ran the regression in equation (1), but added the interaction between the treatment indicator T_{ij} and an indicator for the relevant characteristic. The interaction term enabled us to test for statistically significant differences in impacts based on that characteristic (for example, differences in impacts for females versus males).

For subgroups defined by gender, we found large and statistically significant differences in impacts for the primary outcomes in the vocational training domain. In particular, the impact on enrollment in training since the start of VTGF training was about 13 percentage points (48 percent) higher for females than for males, and the impact on training completion was about 11 percentage points (46 percent) higher; both these differences are statistically significant at the 5 percent level (Table III.12). There is also some suggestive evidence of a difference in the impact on employment at the time of the follow-up survey by gender, though it is not statistically significant. In particular, the impact on employment for males was small and not statistically significant, whereas females experienced a negative impact of 8 percentage points (statistically significant at the 10 percent level). However, the impact on productive engagement at follow-up was small and not statistically significant for either gender. This is largely because females experienced a significant positive impact of 8 percentage points on enrollment in vocational training at follow-up (not shown), which partly offset the negative impact on female employment. This suggests that the substitution of employment for additional training at the time of the follow-up survey (described earlier) was driven mainly by females.[30] The net impacts on earnings in the month prior to the follow-up survey, however, were small for both genders.

[29] We do not have valid baseline measures of household income to conduct a subgroup analysis based on income. However, to the extent that household income (or socioeconomic status more generally) is likely to be correlated with respondents' education and parental education, we will be capturing some of the variation in impacts by income through our subgroup analyses by education group.

[30] We explored whether the gender differences in impacts on employment and further training at follow-up were related to differences in the types of courses in which males and females tended to enroll. For example, employment opportunities might differ for courses in traditionally-male and traditionally-female skill areas, leading to different

For the other subgroups that we considered, the differences in impacts were mostly small in magnitude and not statistically significant (Appendix Table C.1). The only statistically significant difference is a larger (less negative) impact on employment at the follow-up survey for Oshiwambo speakers relative to other language groups. However, this single significant difference is no more than one would expect by chance given the number of subgroups and outcomes that we considered, and is not supported by differences in vocational training since the start of VTGF training (the main mechanism that would affect these outcomes). We therefore do not consider there to be strong evidence of systematic differences in impacts on primary outcomes by respondent education, parental education, or home language.

Table III.12. Variation in impacts by applicant gender (percentages, unless otherwise indicated)

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Females	38.7***	33.1***	-7.6*	-4.7	-90
Males	26.2***	22.6***	-4.0	-2.9	-45
Difference	12.6**	10.5**	-3.6	-1.8	-46
Sample size	1,243	1,228	1,231	1,232	1,151

Source: VTGF baseline and follow-up survey.

Note: All estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Impact or difference in impacts is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

2. Impacts for subgroups defined by training provider characteristics

We also explored the variation in impacts on primary outcomes by the characteristics of the training programs to which applicants applied, including (1) whether the training provider is public or private; (2) the extent to which the training provider gave job attachments to their trainees (at least half of trainees accommodated versus less than half); (3) the duration of the VTGF training program (at least 12 months or less than 12 months); (4) perceptions of training quality (at least half of trainees rating overall quality of the training provider as "excellent" on a four-point scale versus less than half); (5) whether the training was in a traditionally male or traditionally female skill area; and (6) the skill level of the training program (level 1 or 2 versus

impacts on employment by gender. However, the differences in impacts on employment and further training along this dimension were small and statistically insignificant (Appendix Table C.2), which largely rules out this explanation.

level 3 or 4).[31,32] For each of these characteristics, we added the interaction between an indicator for the relevant characteristic and T_{ij} to equation (1). As with the analysis by applicant characteristics, the interaction term enabled us to test for statistically significant differences in impacts based on training provider characteristics.

Our analysis identified some differences across the various types of training providers in impacts on training enrollment and completion since the start of VTGF trainings. Although impacts on enrollment were similar for private and public providers, impacts on completion were significantly higher for private providers (Table III.13). Likewise, impact on enrollment were similar for courses at different skill levels, but impacts on completion were significantly higher for courses at higher skill levels (levels 3 or 4). Impacts on enrollment and completion were both higher for training providers that were less likely to have given job attachments, offered trainings that were longer in duration, were less likely to be rated as having excellent quality, and were in traditionally female skill areas, though only some of these differences in impacts were statistically significant. In contrast, impacts on employment, productive engagement, and earnings tended not to differ significantly across different types of providers (see Appendix Table C.2 for more details).

Table III.13. Variation in impacts by training characteristics (percentages)

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Average ITT impact	33.7***	28.9***	-6.2*	-3.9	-66
Impacts by sector of provider:					
Private provider	34.3***	35.3***	-3.9	-4.0	-41
Public provider	32.1***	11.9**	-12.3*	-3.7	-131
Difference	2.2	23.3***	8.5	-0.3	89
Impacts by provision of job attachments:					
Provided job attachments to at least half of trainees	28.4***	15.5***	-7.4	-0.3	77
Provided job attachments to less than half of trainees	37.6***	38.5***	-5.3	-6.6	-164
Difference	-9.2	-23.0***	-2.0	6.3	242

[31] To assess the rates of job attachments and perceptions of quality as "excellent," we examined responses in the follow-up survey for respondents who reported attending training at a given training provider (regardless of the respondents' VTGF treatment status).

[32] Overall, the information on training provider characteristics was available for 9 of the 10 training providers in our sample (we omitted the training conducted by ABTCC, which no respondents in the follow-up survey reported having attended). Of these 9 training providers, 3 were public providers, 6 provided job attachments to at least half of trainees, 5 offered VTGF trainings at least 12 months in duration, and 2 had overall quality rated as excellent by at least half of trainees.

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Impacts by duration of VTGF training:					
Less than 12 months	23.4***	19.7***	-8.7	-6.2	-141
At least 12 months	37.5***	32.3***	-5.2	-3.1	-39
Difference	14.1**	12.6**	3.4	3.1	102
Impacts by program quality:					
Overall program quality at provider perceived as excellent by at least half of trainees	15.8	18.0*	-14.5	-10.1	-1,327**
Overall program quality at provider perceived as excellent by less than half of trainees	35.5***	29.9***	-5.5	-3.4	34
Difference	-19.7*	-11.9	-9.0	-6.7	-1,361**
Impacts by skill area:[a]					
Traditionally male skill areas	22.1***	18.0***	-7.0	3.6	-415
Traditionally female skill areas	39.6***	34.2***	-5.8	5.9	72
Difference	-17.6***	-16.2***	-1.2	-2.3	-423
Impacts by skill level of training					
Level 1 or 2	32.1***	18.8***	-6.5	0.5	35
Level 3 or 4[b]	34.7***	35.1***	-6.0	-6.7	-129
Difference	-2.7	-16.3***	-0.5	7.2	165
Sample size	1,232	1,217	1,221	1,222	1,143

Source: VTGF baseline and follow-up survey.

Note: All estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. ABTCC trainings are omitted because no members in the follow-up sample reported attending them. Sample sizes vary because of item nonresponse for outcome measures.

*/**/***Impact or difference in impacts is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]Traditionally male skill areas are tour guiding, plumbing, bricklaying, carpentry, shuttering, concrete work, grader, bulldozer, and forklift. Traditionally female skill areas are hospitality and tourism, food and beverage/housekeeping, reception management and office administration, front office, food production, housekeeping and food preparation, food and beverage services, and office administration and computing.

[b]Only one provider (IUM) provided training at level 4.

ITT = intent to treat.

The number of significant differences in impacts on training participation across different types of providers is greater than we would expect by random chance. It is challenging, however, to interpret the pattern of these differences, though we could suggest some speculative explanations. For example, if trainings at providers that are less likely to offer job attachments (or less likely to be rated as excellent) were less attractive to potential trainees, the control group might have been less likely to expend effort finding alternative sources of funding to attend them if they were not offered VTGF funding. Therefore, the control group would have been less likely to participate in training, and the impact on participation would be larger relative to trainings at more attractive providers. However, we do not have any strong supporting evidence for these types of explanations.

Another challenge to interpreting these results is that there are a limited number of training providers in our sample. Therefore, differences in impacts by a particular training provider characteristic might partly capture differences in the characteristics of specific providers. For example, there are only three public providers in the sample, and one of them has a much larger sample size than the other two. Therefore, the impacts for public providers are driven largely by the impacts for this one provider, and might reflect some of its unobserved features that are not related to its being public (for example, the quality of management at the provider).

In addition, some of the observed provider characteristics that we analyzed are correlated. For example, the private providers in our sample are less likely to offer long courses. To attempt to disentangle the variation in impacts associated with each characteristic independently, we also ran regressions in which we included all interaction terms in a single regression model (not shown). The only provider characteristics that were still significantly associated with differences in impacts were the duration of training (significantly larger impacts on training enrollment and completion since the VTGF start date for providers offering longer trainings) and the prevalence of job attachments (larger impacts on training enrollment at follow-up for providers offering more job attachments). However, these findings might still reflect unobserved features of the specific providers in our sample. Overall, our findings suggest that the differences in impacts by training provider characteristics should be interpreted with caution.

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IV. CONCLUSION

As part of its education project in Namibia, MCC funded grants to provide scholarships to eligible applicants for high-priority vocational skills training through the VTGF. This report has presented the findings from a random assignment impact evaluation that enabled us to estimate the impacts of VTGF scholarships on recipients' training and labor market outcomes. In this chapter, we review our main findings and discuss their implications for policy and practice. We also describe the next steps related to the dissemination of the findings.

A. Summary and discussion of findings

1. Impacts on training participation

Our impact estimates suggest that the offer of VTGF funding significantly increased the probability of participation in vocational training since the start of VTGF training. Specifically, about one-third of those who were offered VTGF funding were induced to participate in training purely as a result of the offer. This suggests that a lack of alternative funding sources in Namibia at the time of the VTGF may have been an important constraint to training participation. This is especially true among females, who experienced larger impacts on participation than males.

Despite the large positive impacts of the offer of VTGF funding on training participation, take-up of the offer was far from universal. This suggests that many applicants found other options, such as alternative training opportunities, unskilled employment, or engagement in job search, more attractive than participation in VTGF training. (Because only a relatively small fraction of applicants participated in non-VTGF trainings, alternative training opportunities likely played a more limited role than labor market opportunities.) This is consistent with the findings from the implementation analysis that many applicants applied to the advertised VTGF trainings without putting a great deal of thought into the skill areas in which they were interested (Mamun et al. 2015), and might therefore have had a low commitment to training participation.

Another possible explanation for the limited take-up of VTGF training is that, although the VTGF funding included a board and lodging allowance, other costs associated with training may not have been covered (for example, costs for transportation or training materials). These additional costs to potential trainees might have been a constraint to participation. Although we do not have strong evidence about the importance of these costs, the implementation analysis did suggest that the VTGF board and lodging allowance was important in encouraging training participation (Mamun et al. 2015). Therefore, more broadly, costs besides tuition may be important in potential trainees' decision to participate in training. These same factors—a low commitment to training and additional training costs—might also have contributed to the fact that 22 percent of the treatment group applicants who enrolled in training dropped out before completing it.

2. Impacts on labor market outcomes

The large positive impacts of the offer of VTGF funding on training participation did not translate into positive impacts on employment at the time of the follow-up survey, little over a year after the end of VTGF training, on average (between 6 and 28 months, with a median of 13 months). The impact on the probability of employment was negative, albeit small and only

weakly statistically significant. In contrast, there was a small, positive, and statistically significant impact on the probability of being enrolled in vocational training at the follow-up survey. These small countervailing impacts on employment and training were driven primarily by female applicants substituting further training for employment at follow-up. The net impact on productive engagement at follow-up—which includes employment in paid jobs or in training—was not statistically significant for the overall analysis sample or for either gender. Consistent with the limited impacts on employment, there were no significant impacts on applicants' earnings at follow-up. Similarly, the impacts on the distribution of total individual income (including non-earnings components) and household income were not statistically significant.

We considered several explanations for why the large positive impacts on training participation did not translate into positive impacts on employment at follow-up. First, our estimates might reflect short-term impacts, and the longer-term impacts could differ if those who were engaged in training at follow-up eventually enter employment. However, if we assume that *all* those engaged in training at follow-up were employed instead (an optimistic longer-term scenario), the impact on employment would not be statistically significant. Second, we considered the possibility that VTGF graduates entered the labor market during an economic downturn so that the lack of impacts on employment reflects adverse macroeconomic conditions. However, economic conditions in Namibia were fairly stable over the period in which trainees would have graduated, reflecting a healthy real GDP growth rate of over 5 percent (International Monetary Fund 2015). Third, it could be that trainings were of low quality, so that graduates do not have the skills required to find employment in their chosen fields. However, trainees almost uniformly rated all aspects of their training as "good" or "excellent". Although these are subjective opinions of trainees, one would expect them to be correlated with the true quality. In addition, the employers we interviewed as part of the implementation analysis had a very positive view of the training providers that received VTGF grants based on their previous experiences in recruiting graduates from these providers (Mamun et al. 2015). Therefore, low quality of trainings appears to be an unlikely explanation.

Instead, the most likely explanation is that the skills of graduates were not in sufficient demand in the Namibian labor market, which is characterized by a high unemployment rate: at least 27 percent since 2012 (Namibia Statistics Agency 2015). This is consistent with the findings from the follow-up survey that, even among VTGF training graduates who were employed, the majority were not employed in a field related to their training, about half were in temporary employment, and a majority were not satisfied with their jobs. It is also consistent with a key finding from the implementation analysis that, although the VTGF training grants were intended to target high-priority skill areas determined by market demand, the process of determining market demand had not yet produced rigorous guidelines for prioritizing skill areas when the grants were made (Mamun et al. 2015). Also, the ISCs—the groups tasked with determining market demand—were not fully functioning for all industries during this period. Evidence from the second round of qualitative data collection suggested that this situation had, however, started to improve in the post-compact period, with ISCs conducting research and consulting extensively with industry stakeholders to determine market demand (Velyvis et al. 2016). However, the limited supply of accredited Namibian training providers and courses in some high-demand skill areas—such as agriculture, a national priority—may continue to be a challenge (Velyvis et al. 2016). In addition, the small size of the private sector in Namibia could

limit opportunities for formal employment even if progress is made in these areas. Findings from our implementation analysis suggest that stakeholders, particularly training providers, recognized the lack of employment opportunities for vocational training graduates as an important barrier to their job placement (Mamun et al. 2015).

Our findings also suggest that trainees' employment prospects could benefit from further engagement of training providers with industry. Participation in job attachments by trainees was relatively low, and few trainees received job placement assistance from their providers. Our qualitative implementation analysis found that job attachments are especially important in building trainees' work experience, and can often turn into full-time jobs if trainees perform well (Mamun et al. 2015). However, not all providers offer job attachments, and not all trainees at a given provider are offered one.

B. Implications for policy and practice

1. Providing scholarships for vocational training should be a key component of efforts to expand vocational training in Namibia. Our impact estimates show large and positive impacts of VTGF on enrollment in and completion of training, which indicates that without the scholarships, many of the trainees would not have enrolled in vocational training. The scholarships lower the financial barrier to attending vocational training, particularly for women. Because Namibia has a large population of young people (more than half its current population is under 25) (United Nations 2015), a policy to commit resources from the NTF to provide scholarships for those who enroll in vocational training in key priority areas can help the country build a more skilled labor force. In addition, by supporting women's enrollment in vocational training, scholarships can help improve gender equality in economic opportunities.

2. The findings from the VTGF impact evaluation suggest that providing vocational training scholarships to trainees may not increase employment and earnings in the short or medium term, but it can still contribute to improving the productive capacity of the labor force. The negative impact on employment that we found was mitigated by the positive impact on additional training. These impact estimates suggest that applicants in both treatment and control groups were involved with efforts to increase their human capital at the time of the follow-up survey: the treatment group members were more likely than control group members to invest in building their human capital through further vocational training, whereas control group members were more likely to do so by gaining paid employment experience. Longer-term employment-related outcomes would depend on which type of human capital investment leads to greater economic well-being. In recognition of these paths to human capital and skill development, future efforts to provide scholarships for vocational training should be supplemented by greater attention to supporting and guiding trainees in their post-training endeavors, in terms of assistance in job placement or self-employment start-up, and of providing advice on further training opportunities.

3. If the employment prospects of vocational training graduates are to be improved, it will be critical to determine market demand for skills in a timely and effective manner. The NTA's efforts, particularly through the ISCs, are important for determining market demand and, in turn, for guiding the country's future investments in vocational training through the NTF in the right direction. However, given the small size of the private sector in Namibia, it might

still be difficult to absorb all vocational training graduates in the formal sector; future policy might therefore need to focus more on the informal sector and encouraging entrepreneurship and self-employment.

4. Stakeholders in Namibia recognize job attachment to be a key step toward formal employment after the trainees graduate. Training providers and employers need to collaborate to increase the availability of job attachments in the future, and the NTA could help create an enabling environment by raising awareness and facilitating links between these two groups.

5. The NTA and training providers should seek to increase take-up of training by those eligible for funding and reduce cases of enrollees dropping out and not completing training. Two factors may have led eligible applicants not to take up the offer of funding and led participants to drop out of trainings: (1) costs of training beyond tuition and the VTGF allowance for board and lodging, and (2) a weak match between the trainings to which applicants applied and what they were interested in pursuing. The NTA may want to assess to what extent scholarships fail to meet trainees' other costs, and to identify ways to help trainees finance these costs without placing a greater burden on the government (for example, by identifying mechanisms to target additional financial support to the neediest trainees). Regarding potential mismatch of applicants' interest and training to which they apply or in which they enroll, the training providers may want to gather information on applicant interest during the application process and try to match it to the trainings they are offered. This might help increase trainee commitment to participation in and completion of training, improving the efficiency of the vocational training system. The NTA might consider encouraging this approach among training providers who receive funding through the NTF.

C. Next steps

To ensure that the findings in this report are informative for MCC, policymakers in Namibia, and the wider vocational education and training field, we plan to disseminate them in several forums. These include presentations to MCC in Washington DC and to local stakeholders in Namibia (the findings may be especially informative for the NTA as they continue to develop the NTF as a mechanism for funding vocational training). We also plan to present the findings at conferences and workshops that may be organized by MCC or other organizations. In addition, we plan to prepare an issue brief summarizing the findings for policymakers and practitioners, and will also seek to publish the findings in an appropriate professional journal.

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APPENDIX A:

VARIATION IN IMPACTS BY FOLLOW-UP SURVEY TIMING

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In this appendix we show how our impact estimates for primary outcomes vary based on the time between the end of VTGF training and the follow-up survey. In particular, we examine how our ITT impacts vary if we restrict the analysis sample to those surveyed less than 12 months after training or at least 12 months after training. The impacts on enrollment in and completion of training since the start of VTGF training are substantially smaller for the sample that was surveyed later (Table A.1). The impacts on employment and productive engagement at follow-up are not significant in either sample; neither are the impacts on earnings in the month prior to the follow-up survey.

Overall, the pattern of impacts is broadly similar for both samples, and the findings with these sample restrictions are qualitatively similar to those for the full sample. However, there are some substantial differences in the magnitude of the impacts on training participation for the two samples. As mentioned earlier, the sample surveyed less than 12 months after the end of training is associated exclusively with trainings offered by IUM; therefore, these differences might reflect the characteristics of this specific provider. For example, it might have been harder for control group members to obtain alternative funding for this provider relative to others, which led to larger impacts on training participation.

Table A.1. Impacts on key outcomes by timing of the VTGF follow-up survey relative to the end of VTGF training (percentages, unless otherwise indicated)

	Follow-up survey less than 12 months after the end of VTGF training			Follow-up survey at least 12 months after the end of VTGF training		
	Sample size	Impact	*p*-value	Sample size	Impact	*p*-value
Vocational training since the start of VTGF training						
Enrolled in any training	361	44.6	0.000***	882	26.4	0.000***
Completed any training	361	46.8	0.000***	867	17.3	0.000***
Employment and productive engagement at the time of the follow-up survey:						
Employed	362	-5.1	0.372	869	-5.9	0.162
Engaged in any productive activity[b]	361	-7.7	0.172	871	-1.0	0.810
Earnings in the month prior to the follow-up survey:						
Gross earnings from self-employment or wages:			0.946[a]			0.358[a]
None	349	3.6		802	5.0	
N$1–1,000	349	-0.2		802	-0.2	
N$1,001–2,000	349	-3.8		802	-5.3	
N$2,001–4,000	349	0.8		802	-0.6	
N$4,001 or more	349	-0.5		802	1.1	
Mean (N$)[c]	349	-100	0.618	802	-25	0.902

Source: VTGF baseline and follow-up survey.

Note: All impact estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[b]Employed or enrolled in any vocational training.

[c]Top-coded at the third standard deviation above the mean of non-zero responses to account for outliers.

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APPENDIX B:

ROBUSTNESS TO NONRESPONSE WEIGHTS

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In this appendix we examine the robustness of our impact estimates for primary outcomes to the inclusion of nonresponse weights. These weights were designed to make the weighted follow-up sample reflect the applicant sample in terms of its distribution across trainings. To create these weights, we weighted each follow-up respondent by the inverse of the response rate in the training to which they applied, separately by treatment status. For example, if 80 percent of the treatment group in a certain training responded to the follow-up survey, those individuals received a weight of 1/0.8. We then top-coded these weights at 3 standard deviations above the mean for the full sample (separately by treatment status) to account for outliers and normalized the sum of the weights (again separately by treatment status) to equal the number of observations.

The ITT impact estimates for primary outcomes were very similar with or without weights (Table B.1). The magnitude of the differences between the two impact estimates was small—no larger than 2.1 percentage points for binary outcomes. The statistical significance of the impact estimates was identical for the two impact estimates, except the estimate for employment at follow-up, which changed from significant at the 10 percent level to insignificant when weights were included. Overall, the lack of sensitivity of the impact estimates to the inclusion of weights justifies focusing on the simpler unweighted results in the body of the report.

Table B.1. Impacts on key outcomes with and without nonresponse weights (percentages, unless otherwise indicated)

	Total sample size	Unweighted impact	Unweighted *p*-value	Weighted impact	Weighted *p*-value
Vocational training since the start of VTGF training:					
Enrolled in any training	1243	33.5	0.000***	32.2	0.000***
Completed any training	1228	28.7	0.000***	26.6	0.000***
Employment and productive engagement at the time of the follow-up survey:					
Employed	1231	-6.1	0.069*	-5.1	0.131
Engaged in any productive activity[b]	1232	-3.9	0.242	-2.6	0.437
Earnings in the month prior to the follow-up survey:					
Gross earnings from self-employment or wages:			0.326[a]		0.236[a]
None	1151	5.0		4.2	
N$1–1,000	1151	-0.3		-0.5	
N$1,001–2,000	1151	-5.1		-5.4	
N$2,001–4,000	1151	0.1		0.3	
N$4,001 or more	1151	0.2		1.4	
Mean (N$)[c]	1151	-72	0.632	25	0.870

Source: VTGF baseline and follow-up survey.

Note: All impact estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Weighted impacts account for differential survey nonresponse by training and treatment group. Sample sizes vary because of item nonresponse.

*/**/***Treatment-control difference is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]*p*-value from a test of joint significance across all categories using seemingly unrelated regressions.

[b]Employed or enrolled in any vocational training.

[c]Top-coded at the third standard deviation above the mean of non-zero responses to account for outliers.

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APPENDIX C:

SUBGROUP ANALYSIS

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In this appendix we present the full results for the subgroup analyses by characteristics of applicants (Table C.1) and training providers (Table C.2).

Table C.1. Variation in impacts by applicant characteristics (percentages, unless otherwise indicated)

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Average ITT impact	33.5	28.7	-6.1	-3.9	-72
[*p*-value]	[0.000***]	[0.000***]	[0.069*]	[0.242]	[0.632]
Impacts by gender:					
Females	38.7	33.1	-7.6	-4.7	-90
[*p*-value]	[0.000***]	[0.000***]	[0.072*]	[0.267]	[0.628]
Males	26.2	22.6	-4.0	-2.9	-45
[*p*-value]	[0.000***]	[0.000***]	[0.411]	[0.557]	[0.839]
Difference	12.6	10.5	-3.6	-1.8	-46
[*p*-value]	[0.021**]	[0.040**]	[0.562]	[0.769]	[0.866]
Sample size	1,243	1,228	1,231	1,232	1,151
Impacts by education at baseline:					
Completed grade 12	35.5	30.0	-6.2	-2.9	-75
[*p*-value]	[0.000***]	[0.000***]	[0.149]	[0.495]	[0.687]
Did not complete grade 12	32.8	28.7	-4.7	-3.3	-7
[*p*-value]	[0.000***]	[0.000***]	[0.395]	[0.553]	[0.977]
Difference	2.8	1.4	-1.5	0.4	-68
[*p*-value]	[0.638]	[0.805]	[0.825]	[0.956]	[0.814]
Sample size	1,110	1,096	1,101	1,102	1,033
Impacts by parental education:					
Either parent completed grade 12	41.5	27.8	-6.0	4.9	221
[*p*-value]	[0.000***]	[0.000***]	[0.395]	[0.483]	[0.472]
Neither parent completed grade 12	38.0	32.4	0.0	3.1	70
[*p*-value]	[0.000***]	[0.000***]	[0.994]	[0.553]	[0.757]
Difference	3.5	-4.6	-5.9	1.8	151
[*p*-value]	[0.606]	[0.465]	[0.460]	[0.821]	[0.667]
Sample size	738	728	731	731	691
Impacts by language group:					
Oshiwambo-speaking	32.4	31.9	0.2	-0.9	32
[*p*-value]	[0.000***]	[0.000***]	[0.962]	[0.844]	[0.868]
Other language groups	34.9	24.5	-14.7	-8.1	-216
[*p*-value]	[0.000***]	[0.000***]	[0.004***]	[0.109]	[0.340]
Difference	-2.5	7.5	14.9	7.2	248
[*p*-value]	[0.673]	[0.172]	[0.024**]	[0.270]	[0.397]
Sample size	1,243	1,228	1,231	1,232	1,151

Source: VTGF baseline and follow-up survey.

Note: All estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. Sample sizes vary because of item nonresponse for outcome measures and subgroup characteristics.

*/**/***Impact or difference in impacts is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

ITT = intent to treat.

Table C.2. Variation in impacts by training characteristics (percentages, unless otherwise indicated)

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Average ITT impact	33.7	28.9	-6.2	-3.9	-66
[*p*-value]	[0.000***]	[0.000***]	[0.067*]	[0.240]	[0.660]
Impacts by sector of provider:					
Private provider	34.3	35.3	-3.9	-4.0	-41
[*p*-value]	[0.000***]	[0.000***]	[0.330]	[0.306]	[0.815]
Public provider	32.1	11.9	-12.3	-3.7	-131
[*p*-value]	[0.000***]	[0.026**]	[0.055*]	[0.563]	[0.647]
Difference	2.2	23.3	8.5	-0.3	89
[*p*-value]	[0.743]	[0.000***]	[0.262]	[0.964]	[0.790]
Impacts by provision of job attachments:					
Provided job attachments to at least half of trainees	28.4	15.5	-7.4	-0.3	77
[*p*-value]	[0.000***]	[0.000***]	[0.159]	[0.958]	[0.743]
Provided job attachments to less than half of trainees	37.6	38.5	-5.3	-6.6	-164
[*p*-value]	[0.000***]	[0.000***]	[0.226]	[0.135]	[0.399]
Difference	-9.2	-23.0	-2.0	6.3	242
[*p*-value]	[0.132]	[0.000***]	[0.767]	[0.355]	[0.429]
Impacts by duration of VTGF training:					
Less than 12 months	23.4	19.7	-8.7	-6.2	-141
[*p*-value]	[0.000***]	[0.000***]	[0.181]	[0.335]	[0.628]
At least 12 months	37.5	32.3	-5.2	-3.1	-39
[*p*-value]	[0.000***]	[0.000***]	[0.185]	[0.433]	[0.825]
Difference	14.1	12.6	3.4	3.1	102
[*p*-value]	[0.039**]	[0.049**]	[0.652]	[0.680]	[0.764]
Impacts by program quality:					
Overall program quality at provider perceived as excellent by at least half of trainees	15.8	18.0	-14.5	-10.1	-1,327
[*p*-value]	[0.112]	[0.063*]	[0.235]	[0.403]	[0.017**]
Overall program quality at provider perceived as excellent by less than half of trainees	35.5	29.9	-5.5	-3.4	34
[*p*-value]	[0.000***]	[0.000***]	[0.118]	[0.328]	[0.829]
Difference	-19.7	-11.9	-9.0	-6.7	-1,361
[*p*-value]	[0.058*]	[0.238]	[0.478]	[0.595]	[0.018**]
Impacts by skill area:[a]					
Traditionally male skill areas	22.1	18.0	-7.0	3.6	-415
[*p*-value]	[0.000***]	[0.000***]	[0.241]	[0.308]	[0.167]
Traditionally female skill areas	39.6	34.2	-5.8	5.9	72
[*p*-value]	[0.000***]	[0.000***]	[0.158]	[0.019]	[0.674]

	Vocational training		Employment and productive engagement		Earnings
	Enrolled in any training since the start of VTGF training	Completed any training since the start of VTGF training	Employed at follow-up	Productively engaged at follow-up	Mean earnings in month prior to follow-up [N$]
Difference	-17.6	-16.2	-1.2	-2.3	-423
[*p*-value]	[0.006***]	[0.007***]	[0.873]	[0.599]	[0.185]
Impacts by skill level of training					
Level 1 or 2	32.1	18.8	-6.5	0.5	35
[*p*-value]	[0.000***]	[0.000***]	[0.232]	[0.931]	[0.884]
Level 3 or 4[b]	34.7	35.1	-6.0	-6.7	-129
[*p*-value]	[0.000***]	[0.000***]	[0.165]	[0.117]	[0.500]
Difference	-2.7	-16.3	-0.5	7.2	165
[*p*-value]	[0.668]	[0.005***]	[0.944]	[0.297]	[0.596]
Sample size	1,232	1,217	1,221	1,222	1,143

Source: VTGF baseline and follow-up survey.

Note: All estimates are regression adjusted for training fixed effects and binary control variables for gender, having completed at least 12 years of formal education, having a parent who completed at least 12 years of formal education, speaking Oshiwambo at home, and having completed any vocational training at baseline. ABTCC trainings are omitted because no members in the follow-up sample reported attending them. Sample sizes vary because of item nonresponse for outcome measures.

*/**/***Impact or difference in impacts is statistically significant at the 10/5/1 percent level of significance using a two-tailed test.

[a]Traditionally male skill areas are tour guiding, plumbing, bricklaying, carpentry, shuttering, concrete work, grader, bulldozer, and forklift. Traditionally female skill areas are hospitality and tourism, food and beverage/housekeeping, reception management and office administration, front office, food production, housekeeping and food preparation, food and beverage services, and office administration and computing.

[b]Only one provider (IUM) provided training at level 4.

ITT = intent to treat.

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