Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.11, No.18, 2020

Impacts of COVID-19 on Australian Higher Education Export-A Discussion

Dr Ranajit Kumar Bairagi
Asia Pacific International College, Melbourne Campus, 399 Lonsdale Street, Melbourne 3000, Australia
E-mail: ranajit.bairagi@apicollege.edu.au

Abstract
Based on the desktop method, this study reviews and discusses the predicted impacts of COVID-19 pandemic on Australian higher education export which is the largest service-based export sector and the fourth largest export sector in terms of value addition. The review reports that the COVID pandemic may impact the number of international students to decline by 50% in 2020-2021 academic year, hitting most the Go8 research universities and least the non-university accredited colleges and institutions. The discussion explores few optimistic policy options supporting the recovery and sustainable growth for the sector.
Keywords: Coronavirus, Australian higher education, export, impact, policy.
DOI: 10.7176/JESD/11-18-03
Publication date: September 30th 2020

1. Introduction

The novel COVID-19 standing for **CO**rona **VI**rus **D**isease outbroken ever first in December 2019 in Wuhan, a provincial capital city of China, is one of the number of viruses which cause costly externalities to society through fatal threat to human health and death. Other than death, the pathogenic spreading of viruses causes multifaceted adverse spillover effects on society and macroeconomies, for example, the COVID-19 has already adversely impacted international trade, tourism, travel, energy and finance sectors through triggering a selloff panic in the capital markets worldwide (Herron and Hajric, 2020). Macroeconomic activities and evolving and spreading of viruses are mutually influenced because activities during booms (Adda, 2016) require and lead more traveling and interpersonal contacts whereas recessions (Ruhm, 2005; Evans and Moore, 2012) adversely change health behavior. This connotation is aligned with the prediction of Adda (2016) that the trades of livestock across countries as well as closer contact of mankind and wild animals in Asia and Africa may trigger the evolution and transmission of new viruses.

Once a virus evolved, it needs to be controlled or contained until the availability of effective vaccination. The controlling can be achieved through school closure (Adda, 2016), travel ban, and social distancing (Chang et al., 2020), among others. Considering the public health emergency, WHO declared COVID-19 as a pandemic outbreak on 11 March 2020 (Chang et al., 2020). This pandemic is forecasted to plummet the world economy by 7.6% in 2020 before climbing back 2.8% in 2021 and it may not comeback in 2019-Q4 level for at least two years (OECD, June 2020). The World Bank June 2020 outlook on global economic prospects forecasts that the global GDP growth could shrink from 5.2% (optimistic) despite the extraordinary fiscal and monetary efforts by the governments to 8% (downside scenario) in 2020 (Worldbank, June, 2020). The continuation of each additional month of crisis may cost 2.5%-3% of global GDP with more adverse effect on countries reliant more on foreign trade and service export (hospitality, tourism and education) (Fernandes, 2020).

The increasing number of lockdown days, monetary policy decisions and international travel restrictions have already severely affected the level of economic activities and the major stock market indices across the world (Ozili and Arun, 2020). These have also already adversely impacted the higher education sector globally and particularly in major developed countries through income evaporation from shutting down of accommodation, catering, conference, and academic service (Burki, 2020). The Australian higher education sector is noteworthy among the developed economies because it is Australia's largest service-based export sector (MOE, 2019) and the fourth largest export item. This sector contributed $40.3 billion and supported more than 250,000 jobs in 2019 (ABS, 2019). International students regard Australia as the third most popular education destination in the world (UNESCO, 2019) where students from 191 countries come to pursue their studies in higher education, VET, schools, English Language Intensive Courses for Overseas Students (ELICOS) and Non-award sectors. In 2019, its total enrolled international students increased by 9% over 2018 while it is 11% in the higher education sector which attracts 46.2% of total international students (DESE, 2019). Considering the economic significance of Australian education sector, this study specifically reviews and discusses the prospective effect of COVID-19 pandemic on its higher education sector which exports the largest portion of the education services. This study is significant and timely because it explores few policy options which help the policymakers to compete in the global student market by formulating and supporting the time demand policies. The rest of the study proceeds by exploring the prospective impacts of COVID-19 Pandemic on Australian Higher Education Export, a discussion on potential policy options for sustainable recovery and growth.

2. Prospective Impacts of COVID-19 Pandemic on Australian Higher Education Export

Australian higher education sector is comprised largely of public universities, small number of private universities, and non-university accredited institutions like TAFEs, private and theological colleges, and specialized private institutions. The quality of its higher education sector is regulated and assured since 2011 by one single national regulatory agency: The Tertiary Education Quality Standards Agency (TEQSA) (Hurley and Dyke, 2020).

Australian universities in the higher education sector could earn 137% more real revenue in $ of 2018 by enrolling 57.9% more international students between 2008 and 2018 (Hurley and Dyke, 2020). However, the nature and consequence of pathogenic spreading of COVID-19 have forced the Australian governments to impose international travel restrictions and border closure. Due to the border closure, its higher education sector which is largely dependent on international students mainly from Asian developing countries has already faced a difficult enrolment cliff. To continue the service to the currently enrolled students, its higher educational sector, like other higher educational sectors across countries, has responded promptly to the COVID-19 pandemic through maintaining required social distance and hygiene along with rapid curriculum redevelopment for fully online offering (Crawford et al. 2020). Despite its prompt response, the border closure along with 12.27% reduced student visa in March 2020 compared to March 2019 has already resulted in 262,655 reduced international enrolments in April 2020 from 956,773 in December 2019. The announcement by its Prime Minister Mr. Scott Morrison indicates that its international border may be closed until the launching of an effective vaccination against COVID-19. Hence, this border closure is expected to cause its higher education sector to lose A$3-4.81 billion in 2020 academic year (Moy, 2020). Moreover, beyond the current academic year, the forecasted loss of revenue specially in universities (only) from international students may accumulate between $10 billion (if international students can enter in 2021) to $19 billion (if international students cannot enter in 2021) from 2021-2023 academic year (Hurley and Dyke, 2020).

A forecast report on "The Crisis on the Overseas Student Industry: How should Government Respond?" by the Australian Population Research Institute claims that the COVID-19 pandemic will affect the number of international students to decline by approximately 50% by mid-2021 and this declining enrolment will significantly adversely hit the Go8 research universities because of their higher reliance on Chinese students (Birrel and Betts, 2020). This forecasted hit on Go8 universities is aligned with the evidence that 86% of Chinese students (161,790) were enrolled in higher education in Australia with 60% of them are in Go8 universities as of 1 March 2020 (DHA, 2020). This forecast report also shows the existence of significantly different price charged per year for similar undergraduate and postgraduate masters courses by Go8 universities ($40,000+) and other universities ($25,000). The similar price difference also exists between smaller universities and non-university accredited private colleges and institutions. This price difference indicates that the impacts of COVID-19 pandemic will be more on Go8 universities due to their higher reliance on Chinese affluent students. Predicting the potential decline of Chinese students, the University of New South Wales (UNSW) among the Go8 universities announced to cut nearly 500 staffs (ABC News, 15 July 2020) because UNSW is the preferred place for the Chinese students. As global economy will undoubtedly be adversely impacted by the COVID-19's pandemic, the Chinese economy is also expected to bear the same fate which will lead to downward demand from Chinese students in Go8 universities. The forecasted economic downturn along with slow recovery will force the Chinese students with advantageous background to search the cost competitive study market in their home country, in Australia, and across the globe. This downward demand will further be fuelled by the uncertain timing of opening Australian border, the travel warning by the Chinese government and the recent diplomatic tensions between China and Australia regarding the source of this virus. The downward demand from Chinese students, the travel warning by the Chinese government, and the higher price of Go8 universities support that the international enrollment to Go8 universities may be significantly low.

The forecast adverse hit from international enrollments to Go8 universities is reinforced by the data of enrolment and country of residence of international students which shows that 57% of total international students in 2019 came from five countries ranked as China (28%), India (15%), Nepal (7%), Brazil (4%) and Vietnam (3%) (DESE, 2019). This data also shows that the total international students significantly increased by 30% from India, 25% from Nepal and 4% from China in 2019 over 2018. A significantly large percentage of international students from India and Nepal enroll at the non-university accredited higher educational institutions (e.g. Melbourne Institute of Technology) and smaller universities (e.g. Federation University) which charge significantly less than that by the average smaller universities (HDI report, 2018). Federation University is the only one university after 5 Go8 universities [The UNSW (56.4%); The University of Sydney (57.2%); Monash University (54.4%); The University of Melbourne (56.7%); and The University of Queensland (50.6%)] which could earn more than 50% of its total revenue from international students in 2018. The scenario of Federation University indicates that the students from India and Nepal are mainly after job-oriented cost effective cheaper higher educational programs leading to opportunities of both work and residency. This is further reinforced by the evidence that most of the Chinese students want to repatriate after their study while most of the Indian students prefer to avail the post study work opportunity (Arora, 2019), as a pathway to permanent residency, improve their employability skills and

English proficiency, earn their return on investment (ROI) in overseas education in Australia (Tran et al., 2020). These imply that the flow of international students who are after post study work opportunities will continue during post COVID recovery period preferably to the institutions selling cheaper study programs.

3. Discussion on Policy Options

3.1 Surge of Demand from Domestic Students

The higher education sector can offset little of the revenue loss from international students through potential surge in domestic students. The evidence shows that the demand for higher education usually increases during economic slowdown which requires more knowledge-intensive jobs. The first year of post Global Financial Crisis, for example, experiences 5.6% increase of higher education application than the previous year (HERP, 2020). Prior to the COVID-19 pandemic, the Department of Education, Skills and Employment projects 1.1 million jobs to be created over five years from 2019 until May 2024 which will require 45% bachelor or higher qualification (DESE, 2020).

In the early stage of post COVID-19 pandemic economic recovery, higher proportion of unemployed youth Australians who would otherwise not prefer Bachelor degree or above higher qualification are expected to prefer those because of the security of jobs requiring such qualification. This is supported by the lower unemployment rate among those with bachelor qualification during previous three economic recessions in Australia including the recent past GFC (HERP, 2020). The demand for higher education during post-recession recovery period normally rises due to job retraining (Blankenberger and Williams, 2020), job seeking, and upskilling from unemployed workforce. The higher rate of youth unemployment may thus raise the demand for higher education from year 12 students. The demand for higher education in Australia may also increase if students can easily move between VET and higher education which is one of the 21 recommendations by AQF expert review panel in 2019. It is worth mentioning here that the prime minister of Australia has already announced a package of $2 billion to boost job training and job creation during post COVID-19 recovery commencing in September 2020. $1 billion of this will be used for training or reskilling for up to 340,700 school leavers (The Conversation, 15 July 2020). This package is expected to boost the overall economy through job creation and trigger the demand for higher education from domestic students. The surge of domestic students for higher education will little offset the loss of mid-ranked and smaller universities and least of Go8 research universities because they cannot charge at significantly higher rate for domestic students whose tuition fees have less chance to increase in near future.

3.2 Strengthened Market Position

Australian higher education system, its social values and healthcare system are highly recognized to the international students specially to the Chinese students. For example, an ABC news broadcast on 10 June 2020 claims that Chinese international students defended Australia as a safe destination for study despite a travel warning issued by the Chinese government urging their students to reconsider Australia. Australia's management of COVID-19 is evidenced in its lower rate of infection and death toll per million of population across the developed world. More specifically, in terms of death toll per million of population as of 2nd August 2020, the UK, the US, Canada and Australia ranked 6th (612), 12th (584), 28th (242), and 105th(30), respectively (Worldometers, 8 September 2020). A number of recent successive activities, for example, launching of COVIDSafe app in tracking the suspects (COVIDSafe), provisionally approving remdesivir as the first treatment option by the Therapeutic Goods Administration (TGA, 12 July 2020), the positive results of the phase one human trials of the South Australian Coronavirus vaccine COVAX-19 (ABC News, 01 July 2020) and the continuation of Phase 1 clinical trial of COVID-19 vaccine candidate by University of Queensland (UOQ) complement this hopes of recovery (Clinical Trials Arena, 13 July 2020) and indicate its strength in managing COVID-19.

The strengthened position of Australia in the global higher education market is complemented by a survey result which shows that Chinese students will choose Australia as safer destination for education due to the increased uncertainties caused by the COVID-19 in the US, the UK, and other European countries (The Conversation, 06 July 2020). This strengthened position of its education system, social values and healthcare to the students of China and other Asian countries may further be strongly influenced if Australia can continue its success in mitigating the worst effects of the pandemic. Moreover, Australia has advantageous position to the Asia-Pacific students in terms of synchronous communication, service and support through its proximity and shared time zone (Croucher and Locke, 2020). This strengthened position in the global student market, however, cannot offset the prospective loss from declining number of international students. Hence, this discussion explores two possible policy options such as its higher educational institutions requires to reduce charges for international students and its government needs to flexibly process student visa extend the horizon of post study work visa to attract international students during post COVID sustainable recovery and growth. These two policy options are discussed in 3.3 and 3.4 as follows.

3.3 Reducing Charges for International Students

Australian universities have continuously charged the international students at higher rates whereas they charged domestic students nearly at the constant rate since 2008. More specifically, they increased fees for international full fee-paying students by 10% per year from 2013 to 2018, indicating that they have economical flexibility to reduce the fees for international students. This flexibility is higher for Go8 universities whose revenue grows on average by 39% per year from 2014 to 2018 whereas this growth is only 19% for both mid-ranked and smaller universities (Hurley and Dyke, 2020), indicating Go8 universities are more likely to be adversely effected from less intake of international students during economic recovery unless they use the sharp axe on fees for the international students. The fee reduction will be mandatory for them to compete in the competitive market for international students because the domestic institutions of the intended students from South Asian countries may recover sooner, improve their strength and reduce their fees to retain their domestic students during post COVID pandemic period (Croucher and Locke, 2020). The sharp axes can be used directly or indirectly through offering fee discount, along with partial and meritorious scholarships which will be treated by international students as a recognition of their merits as well as the study program as competitively cheaper in the market.

3.4 Flexible Processing of Visa and Extending the horizon of Post Study Work Visa

To compete in the higher education export market, Australian governments (federal, state or territory) are expected to open the border, ease the requirements of application and grant student visas along with some conditional work opportunities including the extended Temporary Residency (TR) visa for international graduates from Australian higher educational institutions. The ministries concerned of the Australian government have already responded in a joint media release on 20 July 2020 to make five-point changes in their student visa polices favouring visa processing, renewal for existing students and counting residency for post study work visa. This change is aligned with strategic review on the student visa program 2011 which recommends for allowing a moderate period of post study work rights of international students (Knight, 2011). The announced changes in student visa is expected to keep Australia competitive to prospective international students because both Canada and the United Kingdom have already changed their post study work visa policies in March and June, respectively (The Conversation, 30 July 2020). These changes will make Australia the next destination for many of international students who are not thinking of USA as their destination for study because US president Donald Trump announced in 2018 for imposing more restrictions on international students (Mckivigan,2020). Australian governments thus need to strategically revise flexible processing of visa and extending the horizon of post study work visa eligibility in response to the initiatives taken by its competitors.

4. Optimism on Recovery

The optimism on recovery as discussed below will also boost the synergistic effect of the above two suggested policy options. For example, the medication for treatment and vaccination, hygiene and awareness for prevention will be developed over time which all will lead to a sustainable atmosphere for both living and education. Historically, viral infectious diseases adversely caused economic development and death tolls. For example, the Great Spanish Influenza pandemic caused GDP to decline by 6% with 2% death in 43 infected countries during 1918-1920 (Barro et al., 2020). Over 100 years, however, medical science, microbiological science, information and communication technology have developed massively and innovatively, suggesting comparatively faster recovery from the COVID-19 pandemic than previous historical pandemics. More specifically, the innovation of medical science over the past century is linked with higher survival rate of this pandemic than several old virus infected pandemics such as 300 million by Smallpox, 100 million by Influenza (Spanish Flu), 30 million by HIV and 1 million annually by a number of other viruses causing gastroenteritis (Adda, 2016) whereas the world average death toll of COVID-19 pandemic is 88.5/million as of 2 August 2020 (Worldometers, 02 August, 2020).

The hope of sooner availability of COVID-19 fighting effective vaccine is supported by trials of vaccine candidates simultaneously running by a number of countries (WHO lists 17 potential vaccine candidates under human trial) (AAP, 04 July 2020). All these accumulate to hopes of recovery of global economies. The prospective recovery, whether sooner or later, will not compensate the sufferings to the society because all-natural calamities, disasters, and pandemic are undoubtedly destructive in nature through their adverse effects on smoothly running livelihoods and economy. However, they also create some natural antibody and teach us the ways of sustainable growth and living. For example, the Great Boston fire of 1872 was a destructive calamity while the post fire period can be considered as a creative destruction because of its virtual cyclical positive spillover effects on upgraded building construction, increased land values in both burnt and unburnt plots, and upgradation of tenants from residential to commercial (Hornbeck and Keniston, 2017). The COVID-19 is also forcing us to follow the rules of hygiene which will create human antibody to fight future novel viral infectious disease, and further development of medication and vaccination to lead sustainable future living and growth. Education system has already adapted and promoted the large-scale virtual learning, this indicates the education system in near future will promote the virtual learning at large scale where possible. The historic developments around the world in the Post World War

II suggest that the COVID-19 lockdown may lead a better and sustainable education system to emerge (Mukherjee, 2020).

5. Conclusion

The discussion reveals that, due to the travel restriction in place and the nature of spreading of the virus among the closely contacted persons, the COVID-19 pandemic may adversely affect the Australian education sector which is the largest service-based export sector and the fourth largest export item. Its universities may suffer a cumulative loss of more than $10 billion in academic year 2021-2023 depending on the scenarios of availability of effective vaccination. Irrespective of the scenarios, the adverse effect will be more for Go8 universities, less for mid ranked and smaller universities and least for non-university accredited colleges and institutions. The discussion suggests few policy options for Australian higher educational institutions including cutting fees for full fee-paying international students and for governments to continuously revise visa processing and extend the horizon and length of post study work visa to compete in the global higher education export market. The discussion further demonstrates Australia's competitively advantageous position to Asia-pacific students, its strengthened position in the global student market and the optimism of economic recovery. All these will boost the synergistic effect of fee cutting and visa flexibility in attracting international students. The discussion will help policymakers in formulating recovery policies for education sector in response to its major competitors.

References

AAP 04 July 2020: https://www.aap.com.au/who-lists-17-potential-virus-vaccines/

ABC NEWS 01 July 2020: https://www.abc.net.au/news/2020-08-01/sa-potential-coronavirus-vaccine-passes-first-phase/12514988

ABS, Education and Work, 6227.0 (Extracted from Job-ready graduates, Higher Education reform Package 2020)

Adda, J., 2016. Economic activity and the spread of viral diseases: Evidence from high frequency data. The Quarterly Journal of Economics 131, 891–941.

Arora, P., 2019. International student mobility from China and India–the influence of Australian immigration policy, and institutional and family factors on post-graduation destination outcomes (Doctoral dissertation, Swinburne University of Technology).

Australian Bureau of Statistics, 2019.

Barro, R.J., Ursua, J.F. and Weng, J., 2020. The coronavirus and the Great Influenza epidemic: Lessons from the "Spanish Flu" for the coronavirus' potential effects on mortality and economic activity. NBER Working Paper, 26866.

Birrell, B. and Betts, K. 2020. Australian Population Research Institute, Research Report, June 2020: https://tapri.org.au/wp-conte nt/uploads/2020/05/Oseas-students-Covid-crisis-final.pdf

Blankenberger, B. and Williams, A.M., 2020. COVID and the impact on higher education: The essential role of integrity and accountability. Administrative Theory & Praxis, pp.1-20.

Burki, T.K., 2020. COVID-19: consequences for higher education. The Lancet. Oncology, 21(6), p.758.

Chang, S.L., Harding, N., Zachreson, C., Cliff, O.M., and Prokopenko, M., 2020. Modelling transmission and control of the COVID-19 pandemic in Australia. arXiv preprint arXiv:2003.10218.

Clinical Trials Arena 13 July 2010: https://www.clinicaltrialsarena.com/news/queensland-covid19-vaccine-trial/

Covidsafe: https://www.health.gov.au/resources/apps-and-tools/covidsafe-app.

Crawford, J., Butler-Henderson, K., Rudolph, J. and Glowatz, M., 2020. COVID-19: 20 Countries' Higher Education Intra-Period Digital Pedagogy Responses. Journal of Applied Teaching and Learning (JALT), 3(1).

Croucher and Locke (2020): https://melbourne-cshe.unimelb.edu.au/data/assets/pdf_file/0010/3371941/a-post-coronavirus-world-for-higher-education_final.pdf

Department of Education, Skills and Employment. (2020). 2019 Skill Level Projections five years to May 2024. (Extracted from Job-ready graduates, Higher Education reform Package 2020).

Department of Home Affairs (DHA), 2020.

Evans, W.N., and Moore, T.J., 2012. Liquidity, economic activity, and mortality. Review of Economics and Statistics 94, 400–418.

Fernandes, N., 2020. Economic effects of coronavirus outbreak (COVID-19) on the world economy. Available at SSRN 3557504.

Herron, J. and V. Hajric, 2020.'The Market's in Panic Mode.' Stock Markets Plunge 12% Amid Coronavirus Fears. https://time.com/5803847/coronavirus-stocks-fall/

Higher Education Reform Package (HERP) 2020: https://www.dese.gov.au/system/files/doc/other/job_ready_graduates_discussion_paper_1.pdf

Hornbeck, R., Keniston, D., 2017. Creative destruction: Barriers to urban growth and the Great Boston Fire of 1872. American Economic Review 107, 1365–98.

Hurley, P., Van Dyke, N., (2020). Australian investment in education: higher education Mitchell Institute,

Melbourne.
International Student Data, December 2019, Department of Education, Skills and Employment, Australian Government.
Knight, M. (2011). Strategic Review of the Student Visa Program 2011. Canberra: Commonwealth of Australia. Retrieved from https: //www.homeaffairs.gov.au/reports and-pubs/files/2011-knight-review.pdf.
McKivigan, J.M., 2020. Effect of Federal Policy Changes on International Students Pursuing Higher Education Studies in the United States. Higher Education Research, 5(2), p.60.
Minister for Education (MOE), Media Release, 22 November 2019: https://ministers.dese.gov.au/tehan/international-education-makes-significant-economic-contribution?
Moy, N. (2020). https://independentaustralia.net/politics/politics-display/restructuring-higher-education-funding-in-australia-during-a-pandemic,14086.
Mukherjee, M., 2020. Can a better higher education system emerge out of the Coronavirus crisis?
OECD June 2020: https://www.oecd.org/economic-outlook/
Ozili, P.K. and Arun, T., 2020. Spillover of COVID-19: impact on the Global Economy. Available at SSRN 3562570.
Ruhm, C.J., 2005. Healthy living in hard times. Journal of health economics 24, 341–363.
TGA 12 July 2020: https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/australias-first-covid-19-treatment-approved.
The Conversation, 06 July 2020: https://theconversation.com/students-in-china-heed-their-governments-warnings-against-studying-in-australia-141871
The Conversation, 15 July 2020: https://theconversation.com/government-announces-2-5-billion-package-to-support-training-and-apprenticeships-142763.
The Conversation, 30 July 2020: https://theconversation.com/australias-graduate-work-visa-scheme-attracts-international-students-to-our-universities-is-it-enough-143534
Tran, L.T., Rahimi, M., Tan, G., Dang, X.T. and Le, N., 2020. Post-study work for international graduates in Australia: opportunity to enhance employability, get a return on investment or secure migration? Globalisation, Societies and Education, pp.1-16.
UNESCO Institute for Statistics in 2019.
World Bank (WB) June 2020: https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world
Worldometers: https://www.worldometers.info/coronavirus/

Dr Ranajit Kumar Bairagi possesses more than 20 (twenty) years' experience of teaching a cohort of Accounting and Finance units at both undergraduate and postgraduate programs at tertiary institutes in Bangladesh and Australia. More specifically, he has taught Accounting and Finance units at Federation University, Deakin University, and Holmesglen Institute in Australia and Khulna University, Southeast University, Northern University, North Western University, Open University, and Asian University of Bangladesh (AUB) in Bangladesh. He has published academic research papers in business in peer reviewed journals including the World Economy, Property Research, and Property Investment and Finance. Further, he is experienced at retrieving high frequency data from Bloomberg and Datastream along with using Econometric softwares such as STATA and Eviews. He is from Khulna and worked as professor at Khulna University in Bangladesh after obtaining an MBA in Finance from IBA, Master of Commerce in Finance and Bachelor of Commerce with Honours from the University of Dhaka, Bangladesh. He has also obtained a Postgraduate Diploma in Information Technology from Khulna University and a PhD in Finance from Deakin University of Australia.