Factors driving the adoption of platform-based solutions in rural/underserved markets

Applied Research Project Report

submitted by

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Abstract

Rural to urban migration causes an increase in economic activities, however, this trend also leads to a strain on urban infrastructure such public and private services e.g. transport, energy and health care infrastructure. The migration trend was overlaid with the platform business model such as online platform services which attempt to assist in addressing the infrastructure issues caused by the urban migration. There are factors which intervene in the migrant's decision to either move from the rural area to the urban areas which is typically their place of work. Where the rural area provided more benefits, which caused the potential migrant to remain in the area, the factors are described as pull factors. If the rural area provides less reasons for the migrant to remain in the rural area, these factors are seen as push factors – which drive the migrant to move the urban area. These movements are largely pushing migrants to urban areas which causes a strain on urban infrastructure. Globally, online platforms services (e-commerce, e-government, social media, fintechs) are gradually becoming a key part of communication, job productivity, and daily living activities for both employers and customers. Locally, factors which drive migration to urban areas were also being influenced by online platform services which are becoming more accessible in the daily facilitation of life by both the employers and employees. In the studies reviewed, there has not been much done to evaluate whether technologies such as online platform services could aid in addressing the urban migration issue. There are polarities in thought that observe that while urban migration causes an increase in rural economic activities, it also causes strain on urban infrastructure as the population increases beyond the capacity of the urban infrastructure. The study investigated whether factors such as family, employer, employee, and online platforms caused an effect in the reduction of urban migration. Employers were found to be typically located in urban areas. The hard lock-down enforced due to the covid-19 pandemic helped satisfy that employee, employers, family and online platform services can be used to maintain productivity remotely (away from urban areas). The study found that (1) the employee was likely to migrate to urban areas based on their level of education and their province of origin, (2) the employers used online platform services to enable

productivity and there was adoption and lastly (3) there was low family influence on the decision to migrate. A recommendation for future research would be to investigate the migration efficiencies created in the context of the employer or the rural/underserved economy by the adoption of the online platform services.

1. Introduction

1.1 Background

Traditionally, it is found that due to rural to urban migration, people are concentrated in the metros because of high volumes of migration into the cities as the population seeks employment or job opportunities to survive (De Brauw & Mueller, 2014). Economic hubs are established as people gain work opportunities, and their income helps increase demand, thus causing a ripple effect in terms of supplementary work opportunities to fulfil the added demand. De Brauw and Mueller (2014) further note that migration is inherent; however, their work was conducted prior to the covid-19 pandemic and did not consider how online platform servces may assist with migration challenges. The current study examined the traditional reasons for urban-to-rural migration and overlaid these with the potential alternatives that online platform services, family, employer and employee factors make available which can contribute to affecting or possibly driving the reduction of the urban migration challenges.

Prior to the covid-19 pandemic, employment was largely centralised around the physical work building, but in the last few months, the pandemic has unearthed a degree of flexibility in terms of work through the use of online platform services. These changes have also led to huge benefits, such as a decrease in road accidents and reduced air pollution (Brodeur, Cook, & Wright, 2021). This openness can encourage migrant enablement as the migrants from rural areas are not hindered by structural voids which previously presented limitations (such as the absence of infrastructure that hindered them from staying in their homes of origin as they pursued better employment or study opportunities in urban areas).

Jayasekara and Fredriksson (2021) point out that adoption occurs more slowly in a collectivist culture because social networks are closed, and contact with outsiders is a challenge. An intentional consideration of culture may be necessary before an increase in online platform service adoption is realised (Jayasekara & Fredriksson, 2021).

Further to the above, the introduction of online platform services has highlighted new ways for employers to solve traditional issues (Moreira & Verschoore, 2020). While there have been studies conducted on the effectiveness of online platform services, this study aims to investigate whether factors such as family, employer, employee, and online platforms caused an effect in the reduction of urban migration.

1.2. Research problem

In sub-Saharan Africa, a negative correlation between Gross Domestic Price(GDP) per capita and the share of the population living in rural areas exists as elsewhere in the world – the more the population, the smaller the GDP per capita (Brauw, Mueller, & Lee, 2014). Over and above this, migration potentially enhances rural areas' living standards as migrant workers send money back to their source household which enhances rural ecomic activities (Edwards & Ureta, 2003; Lucas, 1997). Edwards and Ureta (2003) focused on migration as driven by the household need for remittance as an isolated subject. Access to online platform services has allowed employers to decentralise operations through enabling employers to work from home and thereby create an avenue to reduce urban migration. Other factors such as the employee's ability to be online may impact the decentralization which will further encourage migration to urban areas (Evans & Schmalensee, 2016).

The research's main contribution is developing new insights into how online platform services can assist in the reduction of urban migration.

The study assessed (1) the use of online platform services in the reduction of urban migration as well as (2) family, employer and employee factors that drive urban migration

1.3. Research objectives

The study sought to explore the following objectives:

- To evaluate whether online platform services could be levers utilised in impacting migration decisions
- To examine the family, employer or employee play a role in the reduction of urban migration

1.4 Significance of the study

Due to limited opportunities in rural areas, there have traditionally been constant volumes of this population migrating to urban areas searching for economic empowerment, whereby opportunities are also physically isolated to these urban areas (Brauw, Mueller, & Lee, 2014). This research examined how online platform services could aid with the reduction of migration due to push factors within the rural/underserved markets, with a particular focus on South Africa.

The significance of this research to the rural/underserved market is that it suggests alternate solutions to socio-economic and structural limitations initially presented. It proposes that migrants can remain in their rural communities while contributing towards the development of their local economies. It can also beutilised by policy makers to encourage economic activity which may aid in unemployment issues and economic growth issues. To the employers, it provides a mechanism whereby they could potentially realise savings pertaining to the cost of accommodating an employee in the firm's premises, building maintance costs can be reduced and the possibility to reduce operational costs as employees adopt a more flexible work-from-home model.

1.5. Delimitations and assumptions

Delimitations

The research focuses on effective platform business models and their impact on socio-economic aspects of an emerging market. While it is understood that there is a high rate of failure (Zhao, et al., 2020), this aspect will not be examined. Due to varying definitions of what constitutes a rural area, it is important to note that the study looks at rural in the context of South Africa.

Assumptions

The platform business model will be contextualised for the respondents; therefore, the study assumes that the respondents will answer all questions honestly. Zhao et al. (2020) mention that platforms have an intense rivalry, leading to the demise of many businesses, and other authors supporting this view are Tauscher and Laudien (2018).

1.6 Definition of terms

The terms that follow are defined in the context of research for better understanding:

Network effects: A phenomenon occurs when the number of customers on a platform increases, causing the platform to be highly valued by the platform suppliers. Similarly, the increase in the variety of suppliers leads to platform customers perceiving the platform as valuable (Heeks, et al., 2021).

Platform Business(Online platform service): A digital marketplace that allows a network of suppliers to register to gain access to a network of registered customers creates business growth and value through technology at a marginal cost (Howell, Beers, & Doorn, 2018).

Rural: Areas that have remote access to adequate infrastructure and are located outside cities, largely in agricultural areas (Zhang, Sun, Hu, Yang, & Shen, 2021).

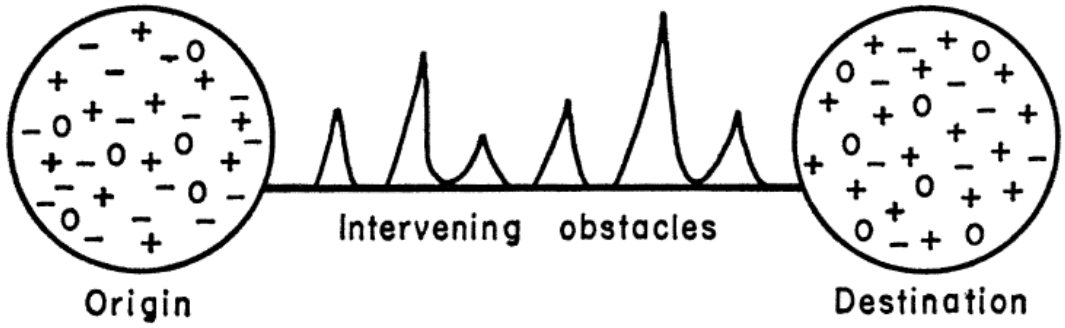
Underserved/rural areas: Areas that are in the outskirts of urban areas or in non-urban environments with limited to no amenities and a low standard of living (Mlambo, 2018).

2. Literature review

2.1 Causes of rural-urban migration

In this section, rural-urban migration was defined, the factors that drive the population's decision to migrate were highlighted, the opportunity costs and the benefits of rural-urban migration were outlined in the South African context of this research.

Figure 2.1. Origin and Destination factors and intervening obstacles in migration



Source: Adapted from Lee's p. 5 (1966) Push-Pull Migration Model

According to Hemphill (2021), two factors are responsible for migration: pull and push factors. Figure 2.1 by Lee (1966) depicts these factors which prospect migrants and migrants consider when deciding whether to migrate or not. The pull factors are those positive factors in the place of destination that could lead to a decision to migrate; these include better employment opportunities, better political structure, and strong infrastructures. The push factors are factors in the place of origin which could trigger the individual's decision to migrate to another area; these can be poor security, poor infrastructure, lack of opportunities (Mlambo, 2018). Prior literature characterised rural-urban migration as the intercountry movement from a largely agricultural economy to a richer, service-based manufacturing economy (Brauw, Mueller, and Lee, 2014; Zhang, Sun, Hu, Yang, and Shen, 2021).

However, more recent research shows an increase in the return of rural immigrants to their place of origin due to the economic opportunities and benefits made available by new agricultural technologies (e.g., Zhang, Sun, Hu, Yang, and Shen, 2021). The limitation in the study of this emerging trend is that while it focuses on emerging economies, it mostly focuses on Sub-Saharan Africa in the western regions and China. Zhang, Sun, Hu, Yang, and Shen (2021) contributions also highlight the existence of fluid or non-uniform definitions of urban and rural regions across the various regions, which make it challenging to compare studies – this is corroborated by other authors (Brauw, Mueller, & Lee, 2014; Lee, 1966; Zhang, Sun, Hu, Yang, & Shen, 2021).

Rural-urban migrations differ depending on the region under study, thereby aluding to a limitation: large portion of the Sub-Saharan Africa literature focused particularly on Western Africa (Potts, 2009). Potts (2009) shows that the reason for the low rates of migration is the lack of employment opportunities in the urban areas, which is in line with previous work looking at the causes of migration and attributing it to the enablement of migrants to provide remittance to their rural households (Lee, 1966; Brauw, Mueller, and Lee, 2014; Zhang, Sun, Hu, Yang, and Shen, 2021). In light of these reports, it is conceivable that a South African context is critical to draw contextual insights and aid in basing assessments of migration growth trends on individual or specific settlements. To this end, Mlambo (2018) also notes a contradictory trend and forecast in the South African context. He notes that South Africa's urban migration is showing alarming growth rates and it is expected that by 2050, a staggering 80% of the South African population will be residing in its urban areas. This is contrary to the observed trends in other emerging countries such as China and West African countries where there is noticeably a decline in migration(Potts, 2009; Zhang, Sun, Hu, Yang, and Shen, 2021).

Brauw et al. (2014) identified that, at the time, it was not clear how economic policies could be utilised to influence positive progress in the rural-urban migration path. Although the research had limitations related to addressing the questions regarding policies, a recent study concluded that government could take measures to implement policies that attract rural migrants to engage in agricultural production

and thus grow rural capacity and potential grow resources (Zhang, Sun, Hu, Yang, & Shen, 2021). The literature review showed that most of the population in Sub-Saharan Africa still lived in rural areas, however, South Africans were increasingly leaving rural regions to find opportunities in urban areas (Mlambo, 2018).

Brauw et al. (2014) have suggested that rural-urban migration causes deep considerations from a policy maker perspective due to the negative implications the migration potentially poses to urban infrastructure and rural development, as noted by Mlambo (2018). The Brauw et al. (2014) and Mlambo (2018) highlight that policy makers have not been deliberate in strategically planning for migration as an economic challenge and the development of rural areas to increase the probability of the skilled resources remaining in their place of origin. Zhu & Luo (2010) assert that rural-urban migration caused accelerated ageing in the agricultural labour force as younger workers migrate to urban areas driving up the average age of labour in rural areas. Moreover, it causes the loss of skilled and innovative people, as they move to urban areas in search of better opportunities, leading the rural areas further into prolonged poverty.

The government has recently undertaken to assist with curbing the problem, leveraging policies such as education, entrepreneurship, and upskilling (Mlambo, 2018). The literature also unearths the immense pressure that rural-urban migration places on the urban infrastructure related to the high levels of traffic, large numbers of housing backlogs, – to a certain degree – higher levels of crime and many other cases which could lead to an infrastructure collapse.

Various contributions noted improved living conditions due to rural-urban migration (Brauw, Mueller, & Lee, 2014; Zhang, Sun, Hu, Yang, and Shen, 2021; Zhu & Luo, 2010). Brauw, Mueller, & Lee (2014) suggest that the migrants returning to their place of origin benefit rural areas as it allows them to utilise their social capital to influence agriculture due to their gained experience and intellectual property. Literature supports that migration is one of the sources of urbanisation. At the same time, other studies show that a huge benefit of rural-urban migration is remittance and its effect on increasing rural household income (Zhu & Luo, 2010).

2.2 Understanding platform business models

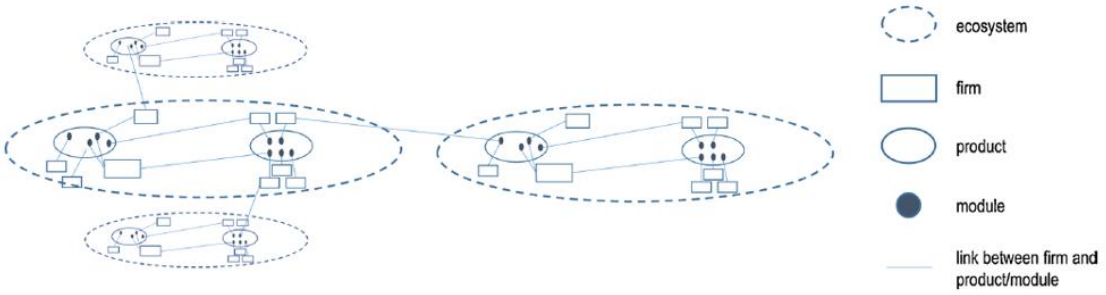
The transformative potential of platform business models has been exponential over the past few years. Platforms like Uber, Airbnb, Alibaba, Bolt, Amazon, showcase the power of online platform services in providing commercial value (Beltagui, Rosli, & Candi, 2020; Moreira & Verschoore, 2020). Summary of platform business models - Tauscher and Laudien (2018) guide various forms taken by platform businesses and Table 2.1 below depicts a taxonomy of six categories of platform businesses and how they monetise.

Table 2.1. Summary of platform business models - (Tauscher & Laudien, 2018, p. 8)

Business model type	Platform type	Platform participants	Value proposition	Transaction type & good	Revenue model	Example
Efficient product transactions	Web-based platform	C2C, B2B	Large product variety	Physical products	Commission fee, subscription fee; mostly supply side	Beepi (eBay for used cars)
Digital product community	Web-based platform	C2C	Being part of a primary non-commercial community	Digital products; physical products	Commission fee; supply side, demand side	Sellfy (connecting 'neighbors' to share durable goods with each other)
Product aficionados	Web-based & mobile platform	B2C, C2C	Exchanging knowledge about niche products with community of like-minded people	Physical products	Commission fee; supply side	HobbyDB (Knowledge database and transaction platform for collectibles)
On-demand offline services	Web-based & mobile platform	B2C	Large service variety in a novel form	Offline services	Commission fee, subscription fee; mostly supply side	StyleSeat (connecting beauty salons & consumers)
Online services	Web-based platform	C2C, B2C	Novel online services with social networking character	Online services	Commission fee, subscription fee; mostly supply side	iTalki (connecting language learners with teachers for 1-on-1 online lessons)

Peer-to-peer offline services	Web-based & mobile platform	C2C	Novel services with community feeling within & outside digital platform	Offline services	Commission fee (demand & supply side), subscription fee (third parties)	Airbnb (connecting people to list, discover, and book private accommodations)

Figure 2.2. Illustration of disruptive innovation through exaptation and ecosystem building.



Source: Adapted from Beltagui et al. p. 2 (2020)

Figure 2 illustrates how platform business models operate. Online platform services are ecosystems that allow firms or common groups to operate interdependently to provide certain product modules. Platforms or innovation ecosystems are open, and as such, a firm is not limited or bound to operating in a single platform or ecosystem and can thus simultaneously function and become members of multiple ecosystems (Beltagui, Rosli, & Candi, 2020). Firms may provide the same modules or products in an ecosystem, which means that they may be rivals in one platform, whereas the same firms can be collaborators in another platform.

Arthur (2009) asserts that every technology is a culmination of previous modules built on and progressively refined to accommodate and improve the circumstances and context required during a certain time. This is how platforms came about, leading to disruptive solutions. Arthur also introduces the concept of exaptation, which is complementary to adaptation, exaptation in technology is the repurposing of an earlier technology in solving a problem for which it was not originally intended. An example of exaptation is demonstrated by repurposing the audio recording technology for data storage or the repurposing of specialist glass producing

technology towards the production of optical fibres (Dew, 2007). Moreover, although the research has illuminated and explained what exaptation is, there has not been a study that focuses on this concept from a perspective of utilising online platform services to repurpose existing business solutions in addressing the forces that drive intranational rural-urban migration.

Literature notes that the success of a platform relies on the strength of its relationships (Beltagui, Rosli, & Candi, 2020). The platform owner facilitates engagements between customers and other suppliers, and for these participants to find value, the platform has to do the work to showcase the value from both the context of the customer (by showcasing all the various suppliers that can assist with providing the convenience and hassle-free experiences the customer is looking for), to achieve this, it must curate the suppliers that it allows to engage on its platform. From a supplier perspective, value is found in the range and volumes of the platform's available customers (Beltagui, Rosli, & Candi, 2020). To achieve this the platform has to ensure that it attracts various customers. There are a few models that a platform can use in order to achieve this desired state. Once an adequate amount of relationships have been built by the platform, the platform is seen as valuable to the participants and thus, network effects have been achieved (Moreira & Verschoore, 2020). Literature suggests that creating network effects as early as possible (building the platform base) is crucial to the platform's success (Howell, Beers, & Doorn, 2018; Moreira & Verschoore, 2020).

Value is alluded to as an equally important aspect of a platform's success (Arthur, 2009; Howell, Beers, & Doorn, 2018; Moreira & Verschoore, 2020). This is the case for customers and suppliers to perceive the platform as valuable, there needs to be a formidable value proposition behind the platform that compels them to engage. The abovementioned authors warn against attempting to increase the base before the value proposition has been clearly rationalised.

The introduction of technology solutions has changed the economic landscape in Africa by introducing cheaper or more affordable innovations (Howell, Beers, & Doorn, 2018). Howell, Beers and Doorn's (2018) study also looks at frugal

technologies. Frugal technologies are the adaptation of technology to drive down costs of otherwise expensive technologies. Platforms can be viewed as frugal technologies because they strip away the aspects of a business solution that drive up customer costs to make the technology more accessible at an affordable rate ultimately. Moreover, the study conducted by Howell et al. (2018) looked at traditional business models and not platform as a business model. However, the benefits derived from lean innovations will apply to online platform services as they aim to create cost-effective value for participants.

Howell et al. (2018) suggest that implementing frugal innovation helps drive down costs, making the technology more inclusive and available to more than the elite. Platforms also allow for groups with a common interest to find an interface where they can engage safely; the strength of these relationships and engagements strengthens the network effects – and ultimately, the value of the platform (Moreira & Verschoore, 2020). The platform generally does not have sight over the quality of products offered by providers, however, platforms must maintain some governance structure to create the trust needed for customers to find the platform valuable. To achieve this, platforms utilise the setting up of boundaries, they also define models of engagement and they envoke consequences where it is found that rules have been violated (Evans & Schmalensee, 2016). Platforms are viewed as matchmakers in that they help connect groups. An example of this is the connection of handypersons with homeowners, the added benefit provided by platforms is the handyman's track-record through user rating(Evans & Schmalensee, 2016).

The invaluable value proposition presented here is removed angst for first-time users of the platform due to the platform owner taking ownership of governance and curation on behalf of its participants. Another challenge that platforms help in addressing is the issue of institutional voids. Institutional voids are defined as institutional shortcomings which make it difficult for the markets to function effectively (Khanna & Palepu, 2005). The policy setters have not yet built policies around how much power platforms can have and what the platforms are obliged to report to governments on. This is not isolated to South Africa but is a persistent issue across economies due to the infancy of this emergent technology. Platforms,

in this manner, have overcome institutional voids because of the very limited governance that exists as far as the technology is concerned (Heeks, et al., 2021). An example of how this would play out in today's context follows: South Africa has institutional challenges with regards to obtaining data on hailing behaviours; while the e-hailing platforms such as Uber, Bolt and Taxify possess this data, they do not solve the issue experienced by government, even though they have the information that can assist (Heeks, et al., 2021; Zhao, Delft, Morgan-Thomas, & Buck, 2020). This is because there is no regulatory obligation placed on platforms to provide such data to policymakers or government at present, as an example.

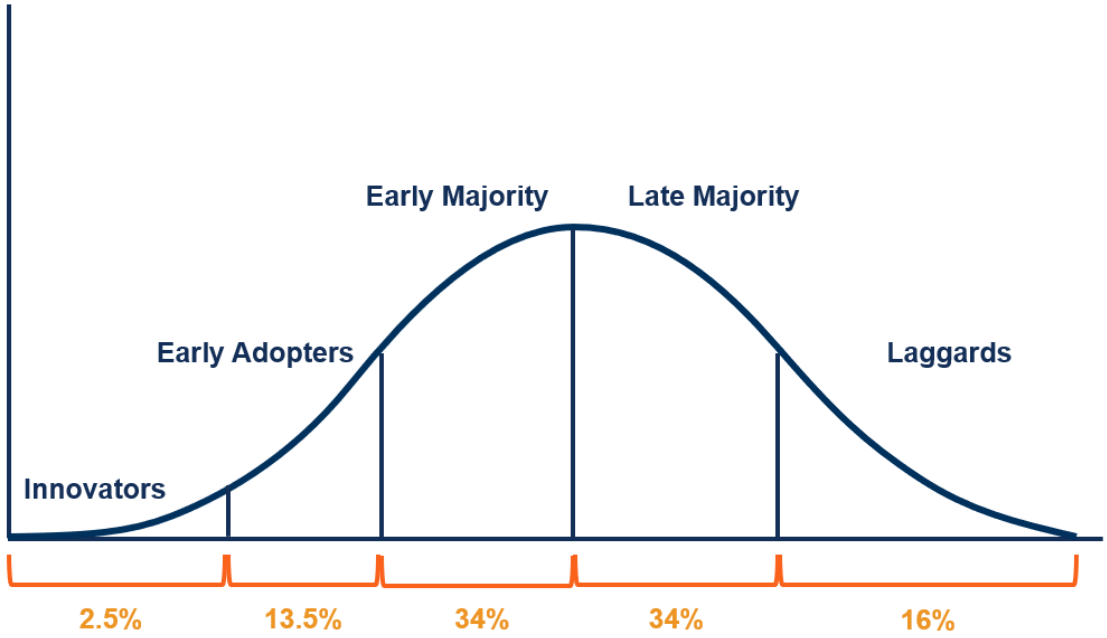
The platforms allow for bypassing labour market regulations, which can also be traditionally seen as hindrances or institutional voids, leading to inefficiencies that exacerbate unemployment, to a degree (Heeks, et al., 2021). While various positive attributes are noted pertaining to platforms, they have also been found to be discriminatory and potentially may provide an avenue to aid corruption. However, Evans & Schmalensee (2016) mention that a core output of platforms is the assurance that platform participants are of quality and that there is a consequence for untoward behaviour. The most critical characteristic of platforms is their network effects based on how both customers and providers trust the platform. This is another control that assists in mitigating suspect behaviour.

Heeks et al. (2021) note that platforms circumvent the onus from participants to vet potential or new partners and the high cost of providing a safe working environment. While other contributions highlight this aspect as a powerful platform value proposition in that it further makes platforms accessible without the cost barriers (Arthur, 2009; Howell, Beers, & Doorn, 2018; Moreira & Verschoore, 2020). Heeks et al. (2021) highlight that platforms solve the data issue by making it easier for the information to be captured, stored and utilised through the platform. It is concluded then that platforms have essentially collapsed an organisational field, and have introduced an unprecedented phenomenon: these businesses now create, have knowledge of, host, manage, operate and govern the entire market, and there is very little done to regulate the companies or platform owners due to the infancy of the technology solution (Heeks, et al., 2021; Pollio, 2021). This can be seen as a

benefit in that it creates the structural efficiency and effectiveness that was traditionally found to be missing in physical solutions. Heeks et al. (2021) provide a recommendation for the government to regulate the platforms, however, in earlier studies it was noted that policy makers do not have the skills needed to facilitate such decisions as policies created have led to challenges down the line (Heeks, et al., 2021; Zhao, Delft, Morgan-Thomas, & Buck, 2020). Heeks et al. (2021) suggest that the online platform services could also provide for employment rights. However, the challenge remains that the regulations put forth by inadequately equipped policy makers could lead to inflexibility. An example of this phenomenon is the minimum income regulation in South Africa, which has made it harder for traditional companies to aid in reducing unemployment as companies look to contain costs by reducing the workforce to remain compliant (Lavecchia, 2020).

Lastly, the world has witnessed significant changes in structure because of COVID-19, as an example. The pandemic has required that economies become more robust in providing effective solutions to the challenges that traditionally plagued firms (Brodeur, Cook, & Wright, 2021). Technology has been at the forefront of providing solutions to traditional work challenges such as the cost of travel time, the high cost associated with living far from work, the challenges individuals face driving their cars during peak traffic as well as the carbon footprint (Küçükaltan, 2020). Küçükaltan (2020) observes that there have been people who are getting more and more connected and mobile, and the suggestion is the utilisation of platform efficiencies to meet the new needs of the economy.

Figure 2.3. The five categories of the diffusion of innovation



Source: Adapted from (Corporate Financial Institute, 2021)

Based on the structural reviewed literature, the study used Rogers' (2003) theory on the diffusion of innovation which states that innovation is communicated through a series of channels over time amongst members of society as an adoption guide or measure. This refers to the process people undergo as they adopt an innovation or idea, or a product. It is evident that the studies are limited to studying migration from an institutional and a social perspective **(Edwards & Ureta, 2003; Brauw, Mueller, & Lee, 2014; Mlambo, 2018)**. There are limited studies focusing on how migration can be influenced by the adoption of platform tools that break physical boundaries. Moreover, to the best of our knowledge, no literature looks at methods that can be utilised to curb the rate of intracountry migrations to alleviate infrastructural burdens placed on urban systems due to the high influx of migrants. Therefore, this research sets out to fill this void.

Moreover, online platform solutions have proven to create many previously unavailable efficiencies due to resource constraints (Evans & Schmalensee, 2016). For example, if an international firm wants to commence operations in another country, they need to have a place where the employees report for work. Looking

at the Uber and the Airbnb online platform services, this barrier has almost been disrupted (Heeks, et al., 2021; Pollio, 2021). This is the online platform service power that this research wishes to examine to determine how it can be used to drive down high levels of urban migration in South Africa. Firms that use online platform services have created great interest and high levels of investment. Shared economies connect users, owners, and providers. Other terms such as gig-economy and business eco-systems describe online platform services (Parente, Geleilate, & Rong, 2018).

3. Methodology

This research examines possible solutions that can be employed to aid within the rural/underserved markets to reduce urban migration, focusing on the South African economy. The research has been conducted with the use of quantitative analysis extracted from respondents residing in rural/underserved markets and thereafter triangulated with data collected from online platform service users. The research approach followed in this article is deductive due to the limited availability of literature that contributes to the research question. The research utilised data that has been collected through the survey instrument, utilizing google forms, that was ethically constructed and limited to adults from the age of 18 years and older.

3.1 Research approach

The quantitative approach was chosen to categorise participants accurately and thereafter analyse how the various cohorts perform in contrast to each other. Quantitative analysis allows for measurement, can be conducted from a systematic perspective, and can be controlled (Hagan, 2014). This allows for the illustration of a more holistic picture as well as a much broader method of analyses. This method leans on the strength of data that can be quantifiable, but also accommodates for data that is more abstract – for such data it was important for the survey to be

developed in a way that allows for gathering of concepts that represent a frame of mind such as measuring the willingness to migrate.

3.2 Research design: Survey Design

The survey instrument sought to extract demographic data from participants and work-related and living conditions data. This data was categorical in nature, however for analysis, they were converted to nominal numbers which allowed for more flexible analysis while preserving the underlying data. This method was chosen due to time and financial constraints. A survey instrument allows for collection of large data, and as it was placed online, participants were able to take-part at their convenience. It also allows for gathering information from disparate groups of the population.

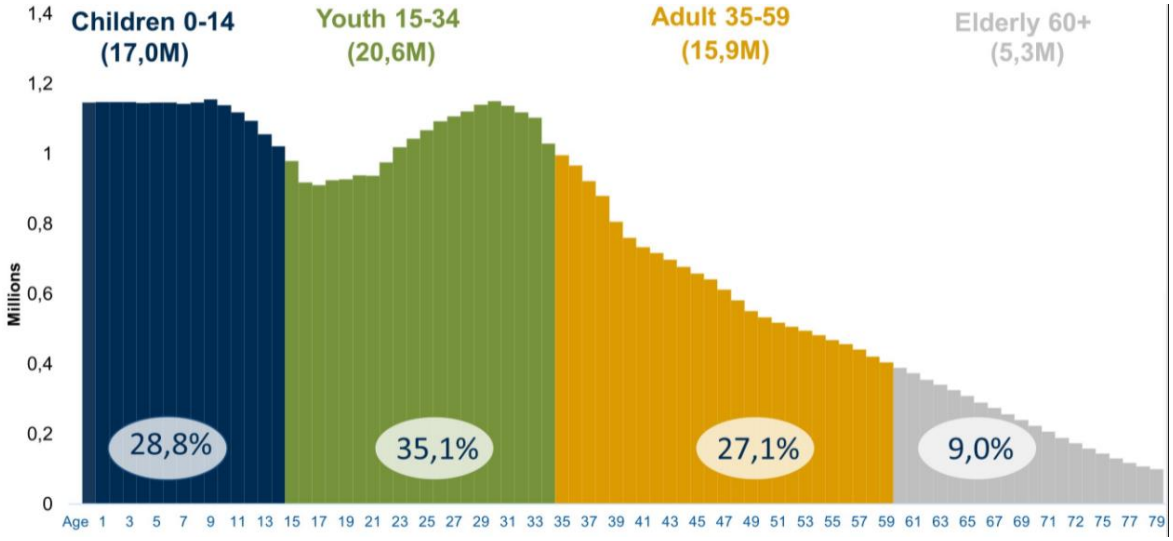
The survey instrument aimed to establish the cause and effects of rural-urban migration by probing factors that lead the population to migrate intracountry. Another objective of the instrument was to understand how firms have broken down geographical barriers by enabling employees to virtually work from anywhere. The research was conducted using quantitative analysis extracted from respondents residing in South African rural, peri-urban, and urban markets (those employed and those that are not). Employment data was collected and further data on the employed respondents regarding adopting new ways of working during the coronavirus pandemic. The survey was conducted online, and respondents needed to have internet access or data to complete the online survey, which was estimated to take 3 to 4 minutes to complete. The survey instrument was initially piloted with a few respondents to test its efficacy and the time it took to complete, amendments were made as certain respondents were seen to have missing data. After receiving feedback from these initial respondents, more questions were added to the instrument and to the extent that there were adequate responses, the responses were analysed. The record was omitted for a particular test where missing data was found, which led to different sample sizes being picked from the overall sample in some instances.

The respondents' data were categorised using numeric values. There were three locations collected from the respondents: their province of origin, their province of residence and their province of employment. These were collated into a single category which deduced whether respondents had migrated or not. Furthermore, demographic data was categorised to test whether the study findings, which showed that most of the young population is migrating, were mirrored in the South African context. Work information was categorised to test whether employees whom the employers enabled to work remotely were inclined to migrate back to their place of origin.

Questions around factors that influence the respondents' decision to migrate were added much later after the instrument was published, which meant that some respondents had missing data for this variable. Due to this data being such a key part of the study, the fields were removed and the information unused where the respondents had completed the question. This was done in lieu of inferring an input for respondents who were not presented with the question, because these factors were seen as personal and therefore complex to assume.

3.2 Data collection

Figure 3.4. Population age structure by single years, 2019



Source: Adapted from (Stats SA, 2019)

Sampling and population

Primary data collection was conducted using the non-probability sampling technique in convenience sampling. The sampling frame for the research was the South African unemployed or employed population. For this research, only the population older than 18 years old was allowed participation - a population of an estimated 35 million as per Figure 3.4.4. The sample size planned for the research was 377 as per recommendation for high populations, derived from a sampling frame of 20 000 (Raosoft, 2004). However, due to time constraints, the sample size achieved was 122. The confidence levels envisioned were set at 95%, with the margin of error in this research at 5%. Convenience sampling frame was applied as a two-pronged approach whereby respondents could use self-selection to participate in the research.

Procedure for data collection

The survey was posted on WhatsApp; it was emailed to work colleagues who met the criteria for the employed portion of the sample. In anticipation that self-selection may have posed a challenge where respondents would not opt into the research, snowball sampling was incorporated where a few people were reached out to who met the survey criteria and requested for these initial respondents to share the survey with the next set of prospects, thus created the snowball effect. To test the response rate, which resulted in a 32% response rate.

Once the survey had been concluded, the data was exported from the survey hosted on google forms onto excel. The data collected was refined through the use of numbers to code the categorical data. While creating anonymous surveys (which did not identify the respondent who completed the survey) assisted in removing angst for the respondents, it posed an issue in that respondents could not be contacted should there have been any unclear input. In this instance, it was encountered when more questions were added to the instrument and respondents had already completed the survey.

To clean up the data, the responses where unforeseen input variable errors may have occurred, or outliers were identified, the “outlier labelling rule” was used, which states that all values which will be calculated outside the range will be considered outliers (Hoaglin & Iglewicz, 1987). After the data collection had been completed, organised, and cleaned, it was stored carefully on a password-protected laptop hard drive to prevent unauthorised access or corruption. Data will be backed-up on a separate drive, and these back-ups were conducted each time a file was amended.

3.3 Data analysis

After the data was successfully collected, organised, and cleaned, it was imported into the SPSS statistical software. Statistical software for Social Sciences (SPSS) version 27 was used to perform the analysis as well as excel. Data were numerically coded to allow for more robust analysis (Thompson, Schwartz, Davis, & Panacek, 1996). As per the proposed literature steps, in analysis, firstly, it was determined whether what was observed in the sample was representative of the population. Data measurements utilised in the study were nominal, ordinal and interval. The methods of analysis were in these forms: descriptive statistics, including means and standard deviations where this made sense. To determine whether there was a significant relationship between variables, descriptive analysis was utilised as well as crosstabulation to arrive at a chi-squared test of relation. This was followed by the presentation of the statistical analysis results – not all the results were surfaced, but those that were found to add value to the overall research.

Participant error may have occurred in this research as participants may not have understood technological terms – however, to mitigate this, the questions had been phrased using plain language. The participants were also free to answer the survey at their convenience, and they had no time limit to complete the survey, which aided with the reliability and validity of the research. Should the respondent have been disconnected or distracted before completion, they could return to complete the survey from the beginning. Due to the anonymous survey, participants felt free to share and provide as much detail as the instrument allowed without fear.

Limitations of the study

The following limitations were noted: the survey instrument had categorical data, making it difficult to perform other regressional statistics. Added to this, the time limit in which one had to collect data was limited and it having been over the festive season, it may have led to under-participation which further led to a small sample size. The sample was not representative of the population as it had a significant portion attributed to full-time employment, where South Africa is battling unemployment as a huge challenge. The age category, progressed in intervals of 5 and then jumped to intervals of 10 which made it difficult to understand the effect of an equivalent group (i.e., one that is a progression of 5 years).

Reliability and validity

The data collection process used categorical data which limited participants mostly to answers that were predetermined for them. The survey was conducted online using a cloud-based survey solution. To better analyse the data, it was subsequently coded utilising numeric values. Testing for reliability of the data, the Cronbach Alpha test was conducted on the variables. Face-validity is achieved through categorising the survey into groups which ask demographic information, migration information, organisational work information and lastly because the phrase “online platform services” isn’t mainstream, this was altered to speak or ask questions which relate to an App – which is a concept many people are familiar with. To assess validity, external structures were used – these consider the relationship between the participants’ results and the external variables (Hagan, 2014). It was identified that South Africa had an unemployment rate of 34.9% and the survey had 9.8% representing the unemployed.

Ethical considerations

Ethical considerations observed for the purpose of this research were those that pertained to the participation of minors without parental consent. The instrument screened participants and disallowed continuation where minors attempted to complete the survey to control for this. The identity of participants had been

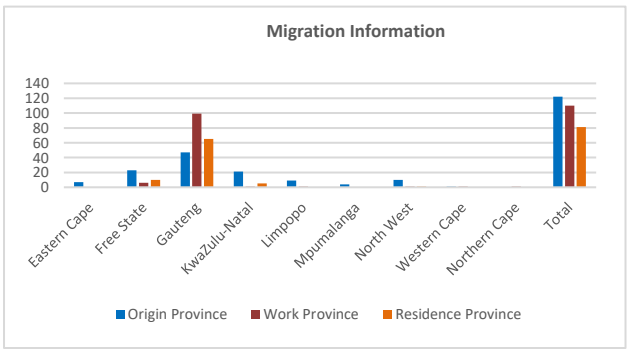
protected by virtue of the instrument not making accommodation for the storing of the personal data which also addressed and mitigated the challenge of the Protection of Personal Information Act. To obtain consent from the respondents, the survey instrument began with a declaration in which the respondents were required to confirm that they consent to participate in the survey, and that they are comfortable with the anonymous processing of their data as part of this work or future work.

4. Findings

4.1 Employee factor influencing migration

To examine whether migration is still occurring in South Africa to ascertain that the challenges that migration brings, such as the overburdening of infrastructure as noted by Heeks et al. (2021) are still legitimate issues that the South African country needs to consider solving. The information below alludes to a fair amount of migration still taking place. An observed employee trend is that where Gauteng is their province of origin, it can influence the occurrence of migration. Other factors such as employee level of education and employment status seem to have some bearing on a decision whether to migrate or not. Having looked at age, it was seen that there was a fair amount of migration occurring across the various age buckets, which did not seem to display any distinct influence of a respondent's capacity to migrate.

Figure 4.5 Migration frequency and rate



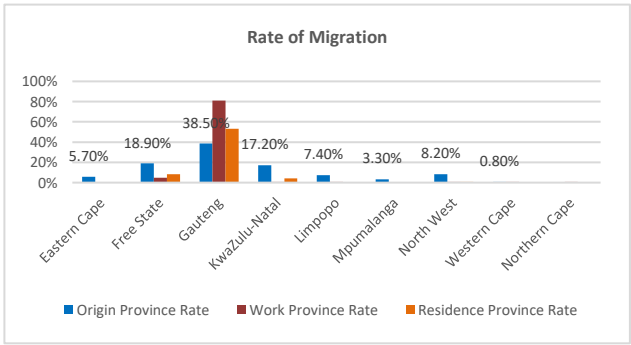


Figure 4.6 Migration by the province of origin

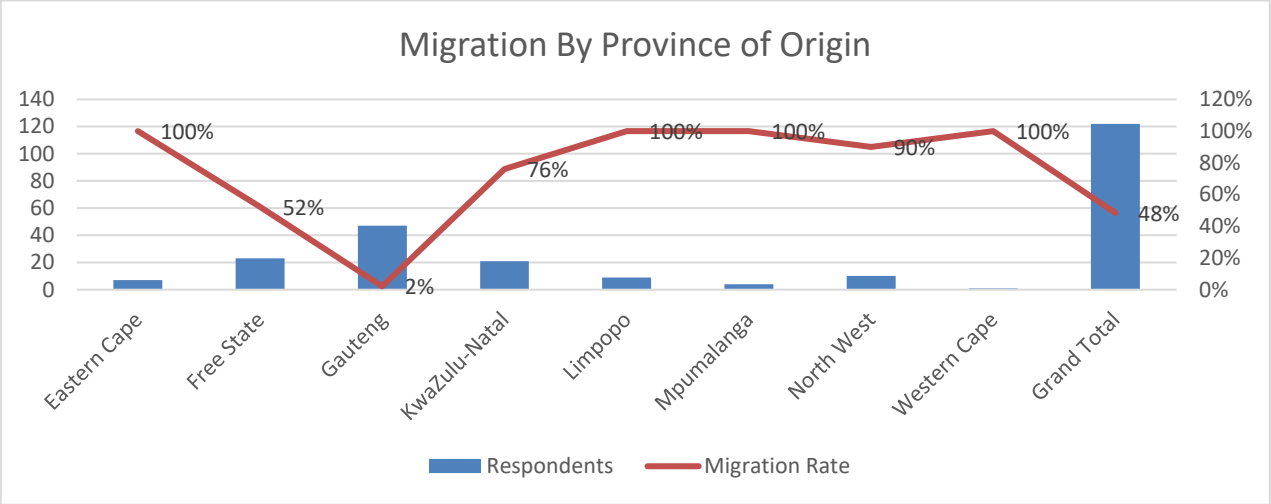


Figure 4.5 shows the migration numbers across the three contexts (where respondents are originally from, where they work and lastly where they currently reside), it is seen that there is firstly a high concentration around Gauteng province, followed by Free State. Cumulatively, the graph illustrates a waterfall that shows a total drop-off in the sample population, filtered by the respondents' province of residence. In Gauteng, it is seen that 38.5% of the respondents are originally from the province, while a staggering 81% of the working population works in Gauteng province. In contrast, 18.9% respondents are originally from Free State, however the data shows only 4.9% of the working population in the Free State. In other provinces, it was noted that there are respondents who are originally from there. However, there aren't respondents who currently work or reside in these provinces – such is the case with Eastern Cape and Mpumalanga with 5.7% and 3.3% of the respondents respectively. Figure 4.6 depicts migration rates based on the number of respondents and their province of origin. Four provinces have 100% of the respondents as migrated (Eastern Cape, Limpopo, Mpumalanga, and Western Cape), while other provinces have retained some respondents: North West – 10%, KwaZulu Natal – 24%, Free State – 48%, and Gauteng retained 92%.

Figure 4.7 Chi Square Test of Province of origin and province of residence

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Likelihood Ratio	53.171	18	.000
N of Valid Cases	81		

a. 24 cells (85.7%) have expected count less than 5. The minimum expected count is .01.

Looking at the trend in terms of Gauteng, an assessment was conducted on whether statistically, there was relation between the province of origin and the province respondents migrate to. In the test the province of current residence was looked at. Using crosstabulation, a chi-square test of independence was performed to examine the relationship between the province of origin and the province of residence. The relationship between these variables was significant, X2 (1, N = 81) = 53.2, p = .000. The province of origin is more likely to influence one's province of residence. The Chi square test shows that there are 85.7% cells which violate the expected count of less than 5. For this reason, the likelihood ration is utilised.

Below is the null and alternate hypothesis, the tests were done assuming a 5% significance level.

H_0 : *The employee factors, and migration are independent.*

H_1 *: The employee factors, and migration are not independent.*

Figure 4.8 Migration by work preference and highest level of education

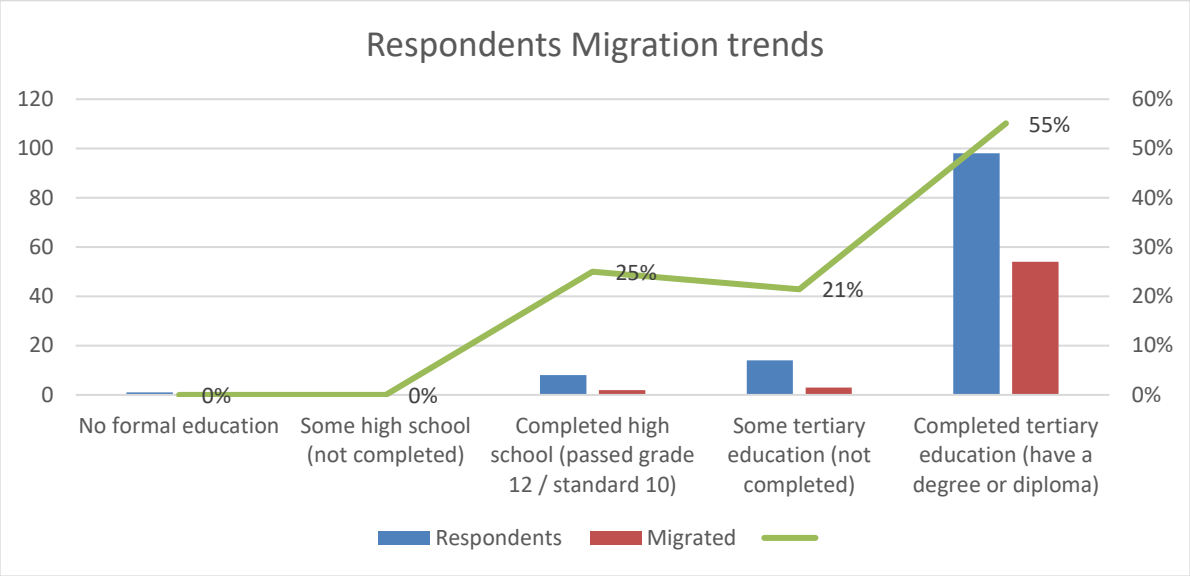


Figure 4.8 shows higher migration rates among respondents who completed their tertiary education at 55%. There were respondents with no formal education, while minimal, these respondents had no migration, a similar pattern was observed for those who had not completed their high school. The respondents who had completed high school or some tertiary education were also migrating at a rate of 25% and 21% respectively.

Figure 4.9 Migration vs. level of education crosstabulation

		Highest level of Education					
		No formal education	Some high school	Completed high school	Some tertiary education	Completed tertiary education	Total
Not Migrated	Count	1	1	6	11	44	**63**
	Expected Count	0.5	0.5	4.1	7.2	50.6	**63**
Migrated - Living where I work	Count	0	0	1	0	34	**35**
	Expected Count	0.3	0.3	2.3	4	28.1	**35**
Migrated - Work in a different province	Count	0	0	1	3	20	**24**
	Expected Count	0.2	0.2	1.6	2.8	19.3	**24**
Total	**Count**	**1**	**1**	**8**	**14**	**98**	**122**
	Expected Count	**1**	**1**	**8**	**14**	**98**	**122**

Figure 4.10 Chi Square Test of migration and level of education

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Likelihood Ratio	16.384	8	0.037
N of Valid Cases	122		
a. 11 cells (73,3%) have expected count less than 5. The minimum expected count is20.			

Looking at the trend in terms of migration relative to level of education in Figure 4.8, it was assessed whether statistically, there was relation between the migration and the highest level of education attained. Using crosstabulation, a chi-square test of independence was performed to examine the relation between the migration and the level of education. The relationship between these variables was significant, X^2 (1, N = 122) = 16.4, p = .037. Therefore, migration is more likely to be influenced by one's level of education. The Chi square test shows that there are 73.3% cells which violate the expected count of less than 5. For that reason, the likelihood ration is utilised for the purpose of this analysis.

Further, a three-way crosstabulation including variables migration, province of origin and highest level of education, shows a significant relationship between these variables X^2 (14) = 110.62, $p < .05$. Looking at the highest level of education subcategories, there is a significant relationship between those who completed their tertiary education, the province of origin and migration X^2 (14) = 86.35, $p < .05$. The symmetric test shows that there's a moderately strong relationship between these variables $r(121) = .360$, $p < .05$.

Figure 4.11 Migration by age & employment status

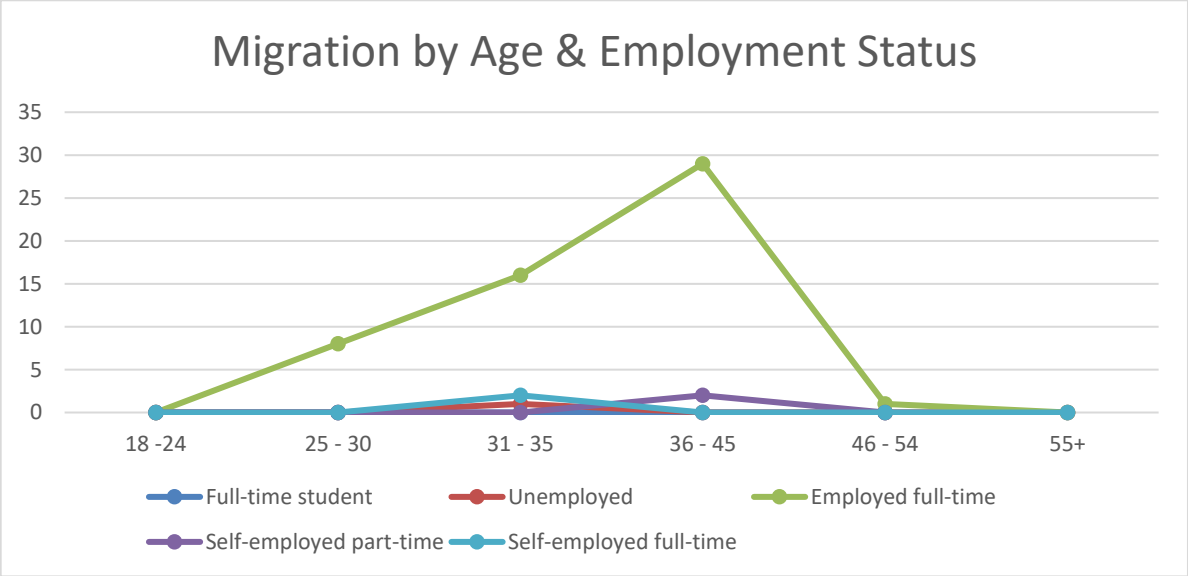
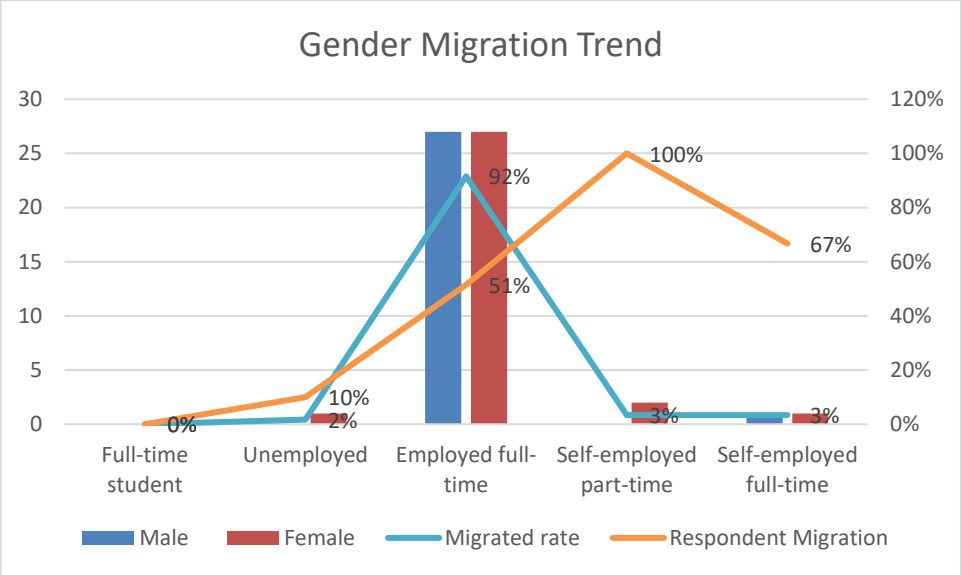


Figure 4.11 depicts the migration trends based on age and employment status. Respondents who had migrated numbered 59 of the 122 (48%). The majority of the migration occurred amongst respondents who were employed full-time. The migration amongst 18 – 24-year-olds and those over 55 years was minimal(0%). Migration activity progresses from the age brackets 25 – 30 (14%) and 31 – 35 (32%), peaking at 53% for the 36 – 45 age bracket and thereafter dipping to 2% and lower for the cohorts older than 45. When looking at whether there was significance in the variable, the test for relation was insignificant. Thus, leading to the conclusion that age is not a determinant of migration.

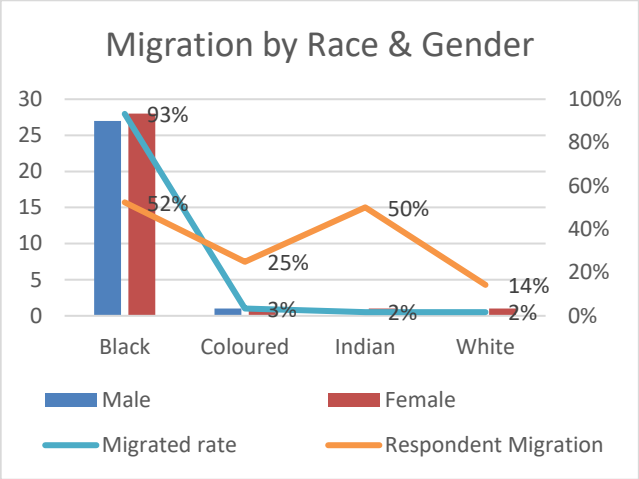
Figure 4.12 Migration trends by gender and employment status

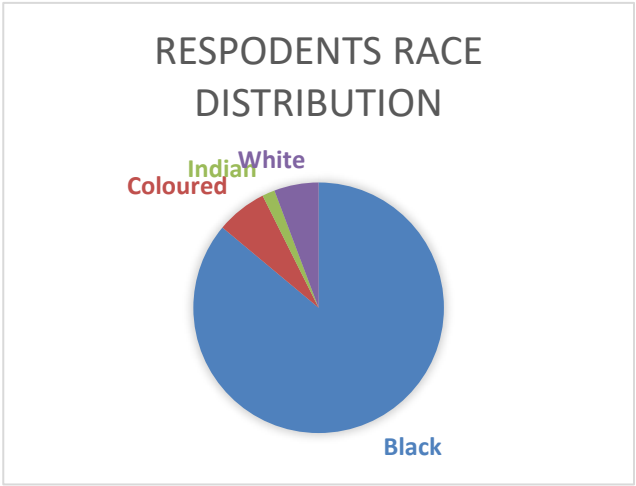


When observing the overall migration, the above graph (Figure 4.11) shows that the most migrations occurred amongst those employed full-time, with no migration for the full-time students, 3% migration for the self-employed, and a 2% migration for those who are unemployed. Of the total respondents who were self-employed part-time, 100% migrated, 67% of those who were self-employed full-time, 10% of those who were unemployed and 51% of those who were employed full-time.

From a gender perspective, the figure depicts 47% of migrated males and 53% females. The population that migrated was largely employed – only finding 1% of unemployed females migrating, 3% of self-employed part-time females and 0% of the equivalent males. There was an equal rate of migrations amongst those employed full-time at 50% from both cohorts. The migration trends amongst the respondents by gender were 53% for the males and 45% for the females. All this being noted, the gender variable was examined for relation to migration and there was found to be no significant relation between the two.

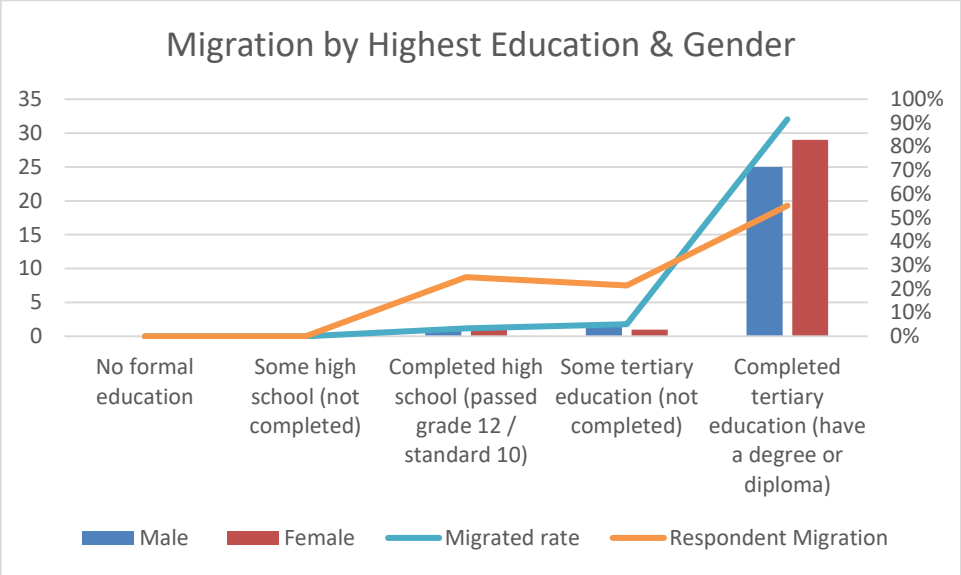
Figure 4.13 Migration by race and gender





Looking at the migration by race and gender, the data shows that most of the respondents were from the black race at 86%, white and coloured respondents made 6% of the respondents each and 2% of the respondents were Indian. This explains why 93% of the migrated population is black, followed by 3% from the coloured cohort and at 2% for both the Indian and white populations. Looking at the migration trend across the respondents, it was observed that 52% of the black population migrated and 48% did not. This is followed by 50% of the Indian population, 25% of the coloured population, and 75% of this cohort is not migrating. Lastly, 14% of the white cohort exercised migration and 86% not migrating. The gender variable was tested for the relationship with the migration variable and no significant relation was found.

Figure 4.14 Migration by highest level of education & gender



Progressively looking at the level of education, those with no formal education and those with some high school education are found not to be migrating in both genders. As cohorts complete high school, the migrated respondents were at 25% of those who had some tertiary education 14% of the males were migrated and half that rate for females. Of those who have completed their tertiary education 30% of the female respondents migrated and 26% of the male respondents with a similar level of education.

4.2 Employer as a factor influencing urban migration

The below findings are of the respondents' behaviour as far as technological developments are concerned. The biggest things that can aid the transformation of the South African country are the advancement of technology and the ability to operate businesses using cloud computing. Below, the findings show how customers are utilising or willing to utilise available technology to make their lives easier. It also shows how businesses have started creating more conducive work environments so that employees can work flexibly (expedited by the covid-19 pandemic).

Figure 4.15 Work preference vs employer work arrangement

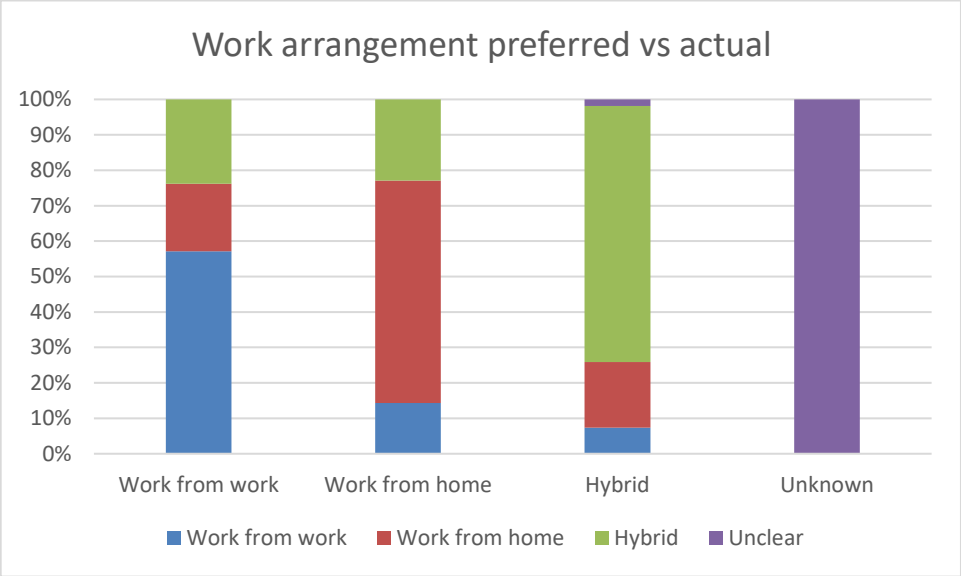
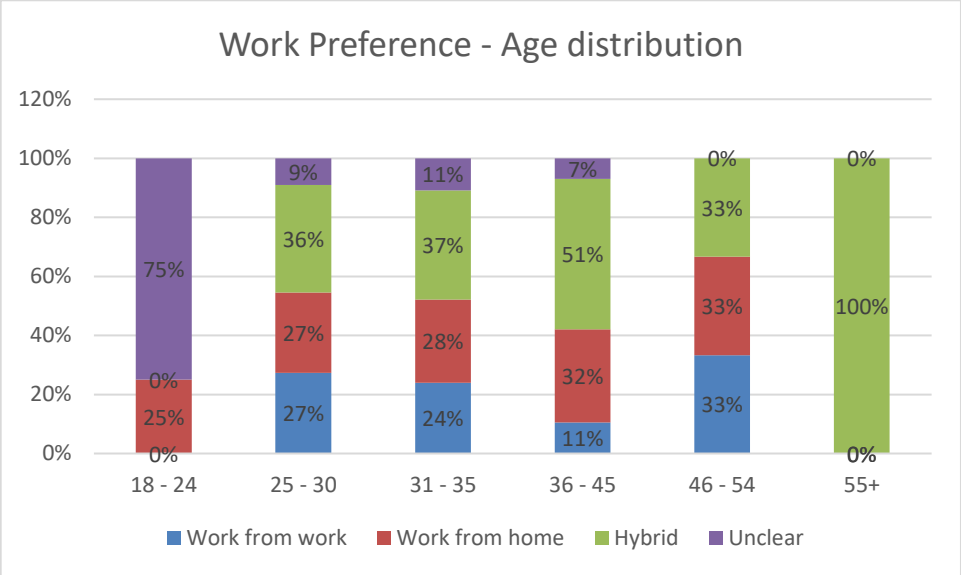


Figure 4.15 shows that people prefer a certain working arrangement and are fulfilling that arrangement, while others are not as aligned. Of those who prefer to work from work, a majority of 57% is already working from work, 43% who prefer to work from work are not. The next category is of the work from home cohort who also have a majority aligned with the employer's arrangement for the majority (63%). There is a respondent whose response was unclear. Then lastly, there is a category of people who prefer a hybrid model. A majority (72%) of the respondents are in jobs that are helping them fulfil their preference. A majority (43%) of the respondents preferred a hybrid model, followed by those who preferred to work from home (30%) and lastly, 17% of the respondents who want to work from work. Some of the respondents who want to work from work, have been enabled by the employer to work from home (24%), and 19% work in a hybrid working arrangement.

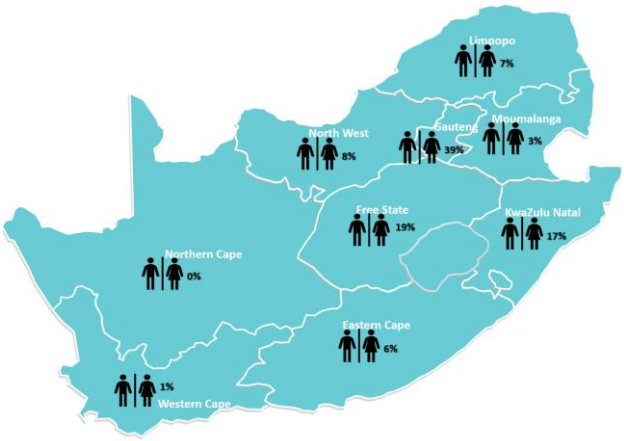
Figure 4.16 Work arrangement preference distribution by age



The age bracket 36 – 45 has 47% of the group's responses. Due to the categories not being evenly distributed, the data was normalised using percentages to understand the distribution among the various categories of those who preferred a certain type of working arrangement. It was found that the 55 years-and older preferred a hybrid model, while all the other categories preferred the same to a varying degree. The 36 – 45 age group had the second most high preference for working in a hybrid working arrangement. The 46 – 54 year olds had the highest number of people who would prefer to work from home and the lowest number for people who would prefer to work from work (the office building) was amongst those in the age group 36 – 45 years, again mostly preferred by those between the ages of 46 and 54 as depicted on the graph (

Figure 4.16).

Figure 4.17 Province distribution of respondents



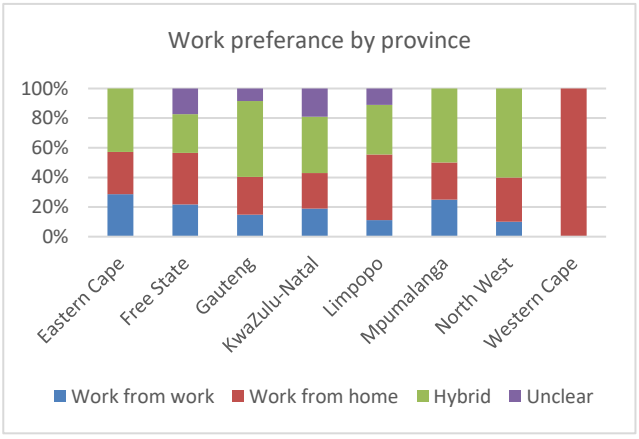
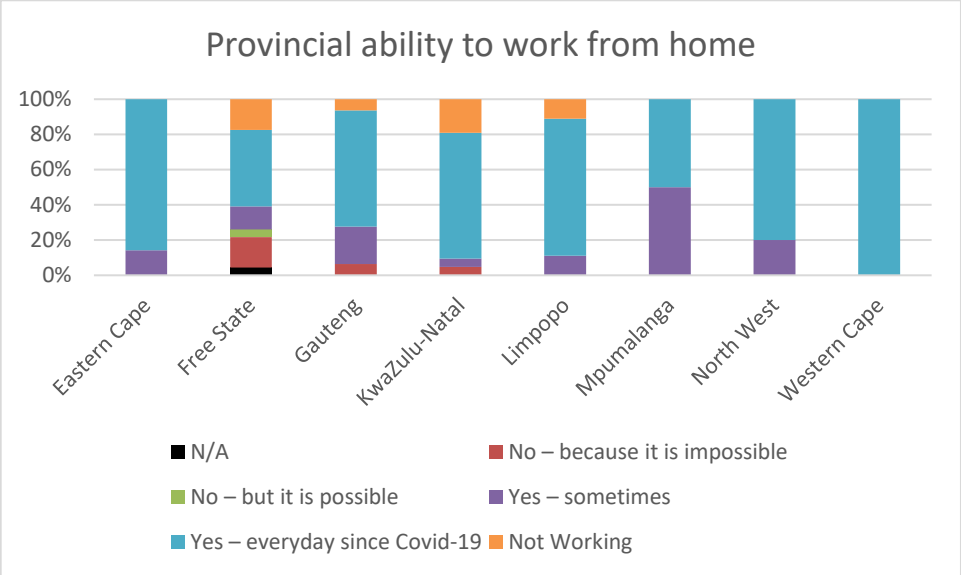


Figure 4.18 Work preference heatmap by province of origin

Work Description	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Western Cape
Work from work	29%	22%	15%	19%	11%	25%	10%	0%
Work from home	29%	35%	26%	24%	44%	25%	30%	100%
Hybrid	43%	26%	51%	38%	33%	50%	60%	0%
Unclear	0%	17%	9%	19%	11%	0%	0%	0%

Some respondents originated from 8 of the 9 provinces, their work arrangement preferences show that some are more inclined to want to work in a hybrid working environment, while others prefer to work from work (the offices) 17%. 72% of the respondents wanted the flexibility of working either in a hybrid working environment or working from home. Looking at each of the provinces of origin, Limpopo (11%) and North West (10%) had the least number of people who wanted to work from the office. Eastern Cape (29%), Mpumalanga (25%) and Free State (22%) had the highest number of people who wanted to work from the office. All the provinces had respondents who would rather work from home, with Limpopo (44%), Western Cape (100%) and Free State (35%) with the higher number and the lowest ratio being 24% in KwaZulu-Natal. A hybrid working environment was most prominently preferred by respondents originally from North-West (60%), Gauteng (51%) and Mpumalanga (50%). The lowest preference for a hybrid working arrangement was found in Free State (26%) followed by Limpopo with a rate of 33%, which is still higher than those who prefer to work from the office.

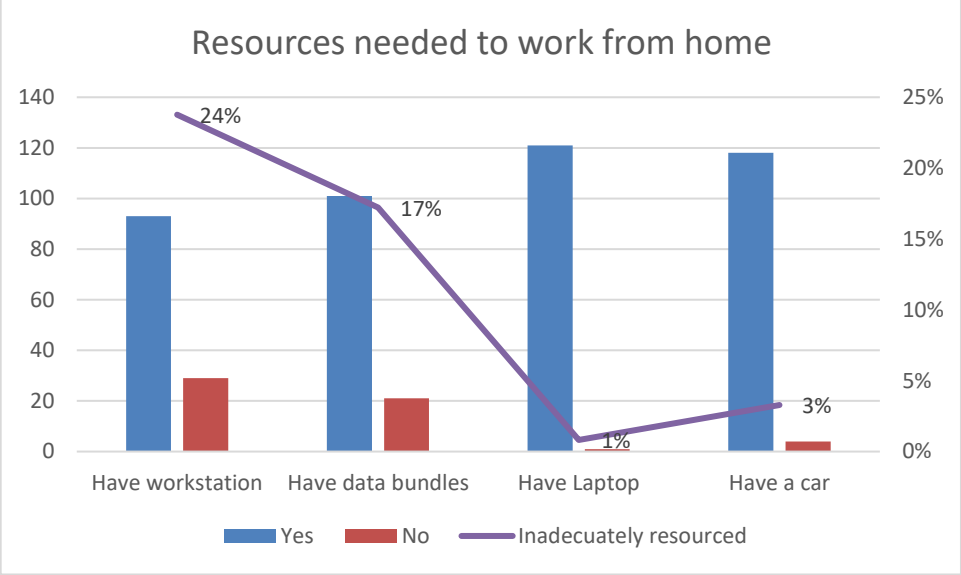
Figure 4.19 Ability to work from home by province



Only the Free State province didn't have the ability for some of its employees to work from home, it was not ascertained whether it was because of the role the individual was fulfilling or something else such as lack of tools or infrastructure. Respondents from the Eastern Cape had been working from home – a majority doing so every day since covid-19 began. Respondents from Gauteng who did not have the ability to work from home were unemployed or had jobs which made it impossible to work from home. Of those who were employed, a majority had been working from home since the pandemic began. KwaZulu-Natal had many respondents who did not work, but of those who worked, as with other provinces, they were largely working from home daily since the pandemic. The trend is similar across the country, except Mpumalanga, which depicts a more even split between those who had the ability to work from home daily since the pandemic started and those who did this sometimes. In total, 66% of the country successfully moved its operations to individuals' homes during the pandemic. Others were allowed to work from home sometimes – this is 16% of the respondents. This wok-from-home phenomenon has shown that the right technological tools can aid in enabling more people to access work from anywhere where data issues are not a problem. With 82% of the respondents saying that they are currently working from home some days (16%) and every day (66%). Only 1% saying the ability to work from home is

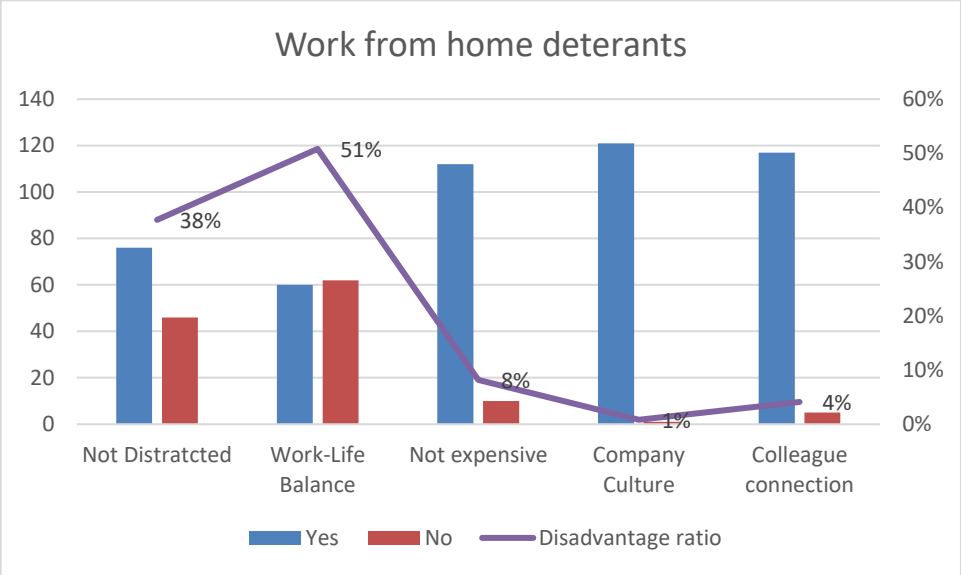
there, however, their employer does not allow it and the rest of the respondents either being unemployed or not able to facilitate working from home (10%, 8% respectively), it stands that there are new technological developments that can aid getting people to facilitate their jobs outside of the country's hot-spot provinces such as Gauteng.

Figure 4.20 Resources needed to work from home



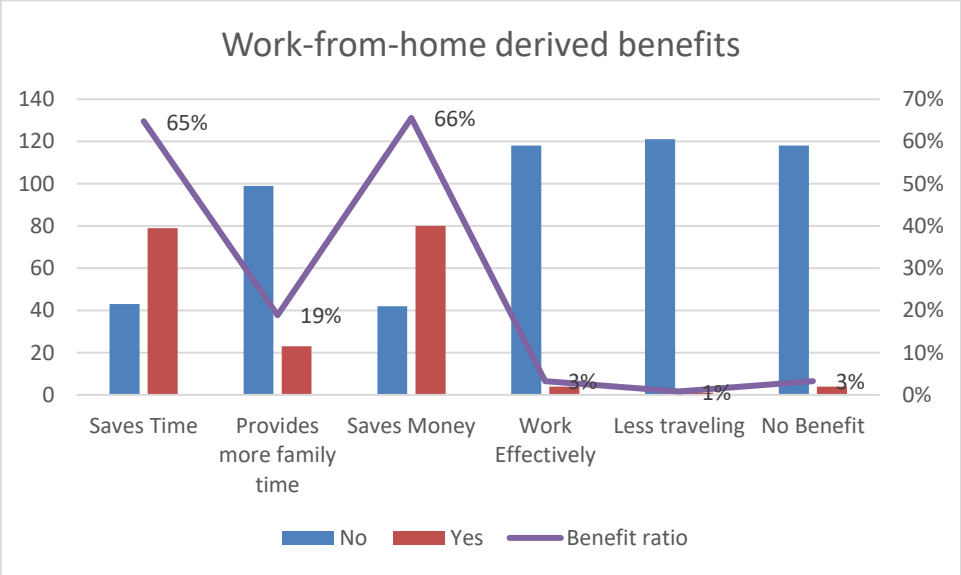
Some of the respondents noted that they were lacking a few resources for them to work effectively from home. Of those who noted outstanding needs, the highest among these was the provision of a workstation (which could be coupled with a laptop in this view), this need was at 25% collectively. Following this need, the respondents noted that they were also looking for data bundles in order to work effectively (17%). Lasty, the respondents noted that they needed a car in order to facilitate better working from home (3%). Two of these issues can be solved using technology and require a cheaper solution from an organisation's perspective as opposed to the latter need which requires the employee to solve and has high capital requirements in order to achieve. The data was also viewed from a province of origin perspective, and it was found that the needs were spread across various of these provinces. However, when looking at the needs from a province of work perspective, most of the needs are for respondents who reside in the Gauteng province, where they work.

Figure 4.21 Work-from-home deterrents



It was found that respondents had noted deterrents to working from home and at the top of the list was an inability to maintain a work-life balance – 51% felt this way. Following this, the respondents alluded to distractions being their second highest disadvantage in terms of working from home (38%). Some (8%) found it a little more expensive for them, while others felt that working from home deteriorated their connections with colleagues (4%). Last deterrent is that the company culture gets lost during this way of working (1%) – however not a lot for respondents felt this way – 99% felt that the culture was sustained during the work-from-home period.

Figure 4.22 Work from home derived benefits



Respondents expressed deriving more benefits in working from home than deterrents. With the highest deterrent being work-life balance at 51%, the highest benefit was the ability to save money which was at 61%. Following closely to this was the ability to save time, which 65% of the respondents expressed. 19% of the respondents said that it provided them with more family time. While the least derived benefits were working effectively and travelling less sitting respectively at a negligible 3% and 1%. Similar to these latter benefit ratios, there were other who saw no benefit in working from home (3%).

4.3 Effects of online platform services on urban migration

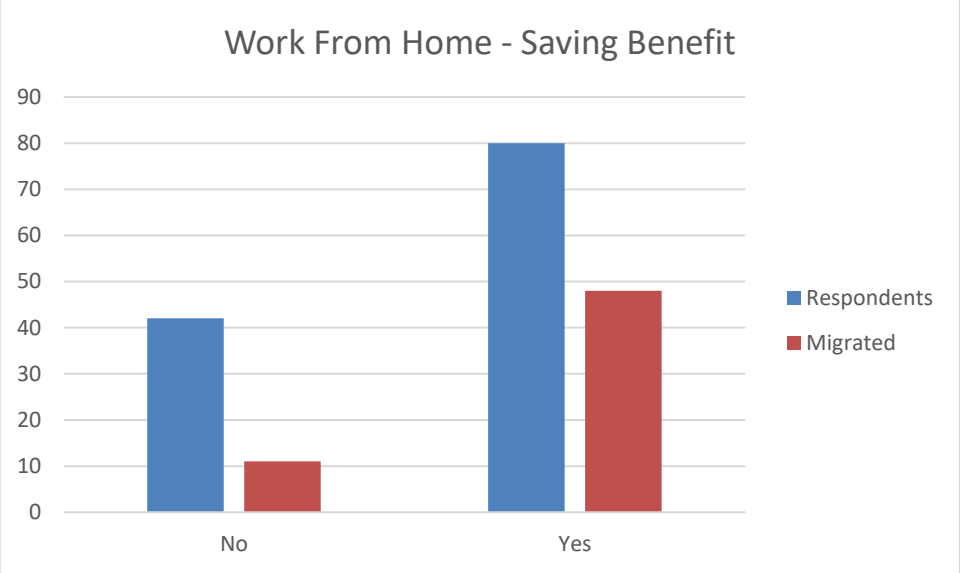
Having looked at how the sample facilitated migration and finding that a significant portion of the sample still migrates to another area of residents for work or other purposes, it has been satisfied that migration is still occurring in South Africa. Following that, it was tested whether there were any new developments in the form of employers affording their employees the ability to facilitate work using a more fluid arrangement. It also looked at how employees have taken to the new ways of working introduced by the pandemic and found that there was definite high adoption of these new models – because the lock-down required that most companies pivot

from office-bound to a structure skewed towards working from home. Lastly, the study looked at overlaying the two views together to ascertain whether there is a case to be made for integrating technology and retrofitting it to solve the known and occurring intercountry migration challenge in South Africa. By combining the migration views and the platform solution or technology adoption views presented earlier, trends such as how various respondents facilitate migration, what they found beneficial, and challenges they faced during the course of the adoption of the new ways of working were noted.

The study aimed to assess two things:

- To evaluate whether online platform services could be levers utilised in impacting migration decisions
- To examine the family, employer or employee play a role in the reduction of urban migration

Figure 4.23 People who prefer to work from home due to the savings benefit



The above figure depicts the respondents who valued the work-from-home benefit of saving and how they have facilitated migration. There were 26% of the respondents who did not find it beneficial to work-from-home on account of savings who had migrated. Of the respondents who found a savings benefit in working-from-

home, 60% of them migrated. The other work-from-home benefits such as effective working, family time and less travel were not as favoured.

Figure 4.24 Migration by work stability and preference

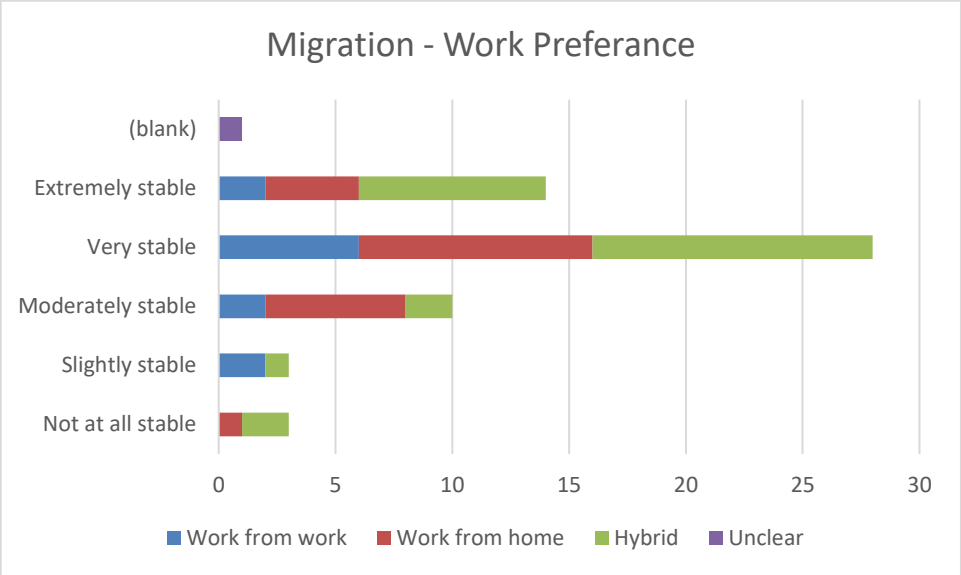


Figure 4.25 Migration rate by work stability

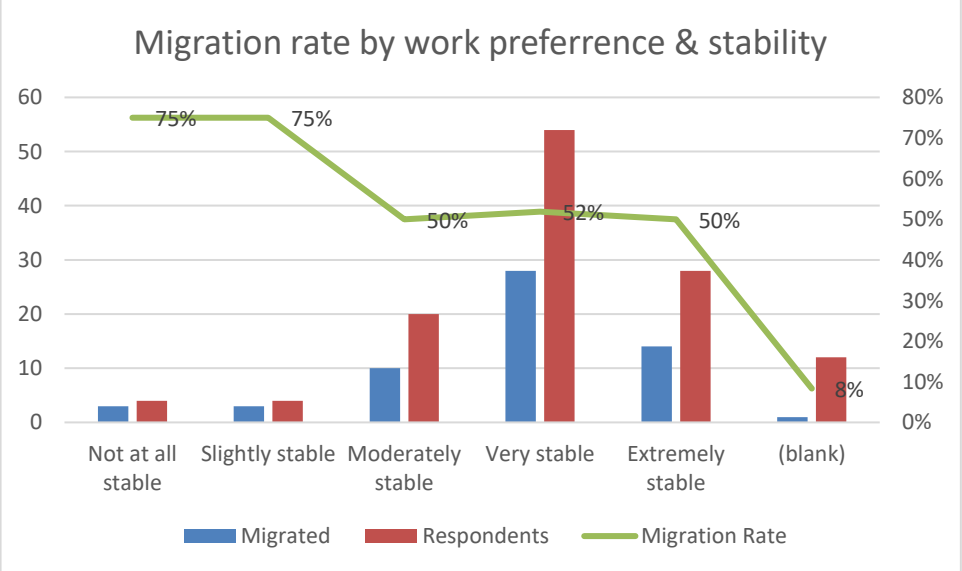
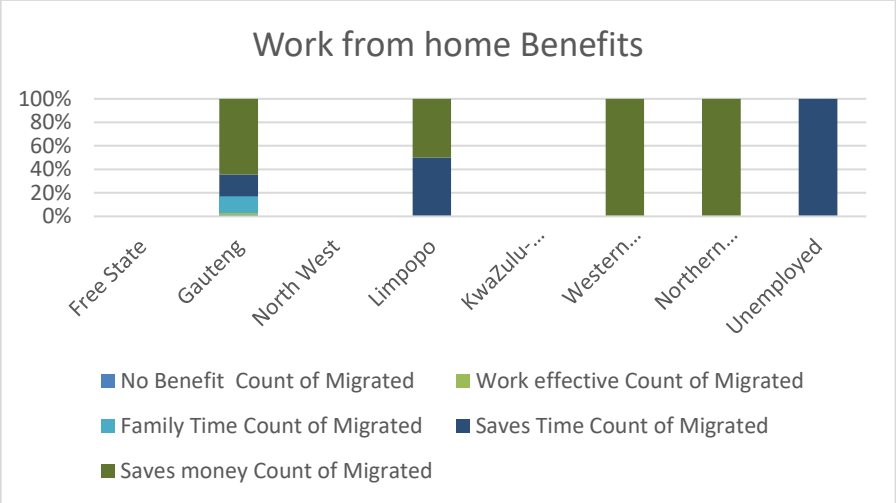


Figure 4.25 above the majority of those who had migrated (71%) were either in very stable or extremely stable jobs. It is also seen that there's a high preference to a hybrid working model, with 42% of the migrants preferring this work arrangement, 36% of the migrants preferred to work from home, while only 20% of them preferred

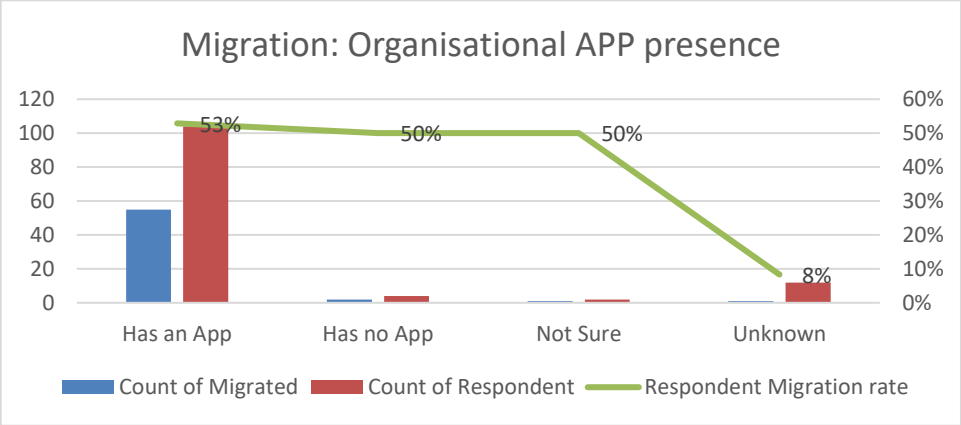
to work from their place of work. Of the total respondents, those who did not have any job stability and those who had slight stability migrated at a 75% rate, whereas those who had more stability migrated at a rate ranging around 50%.

Figure 4.26 Emplyer work environment effect on migration



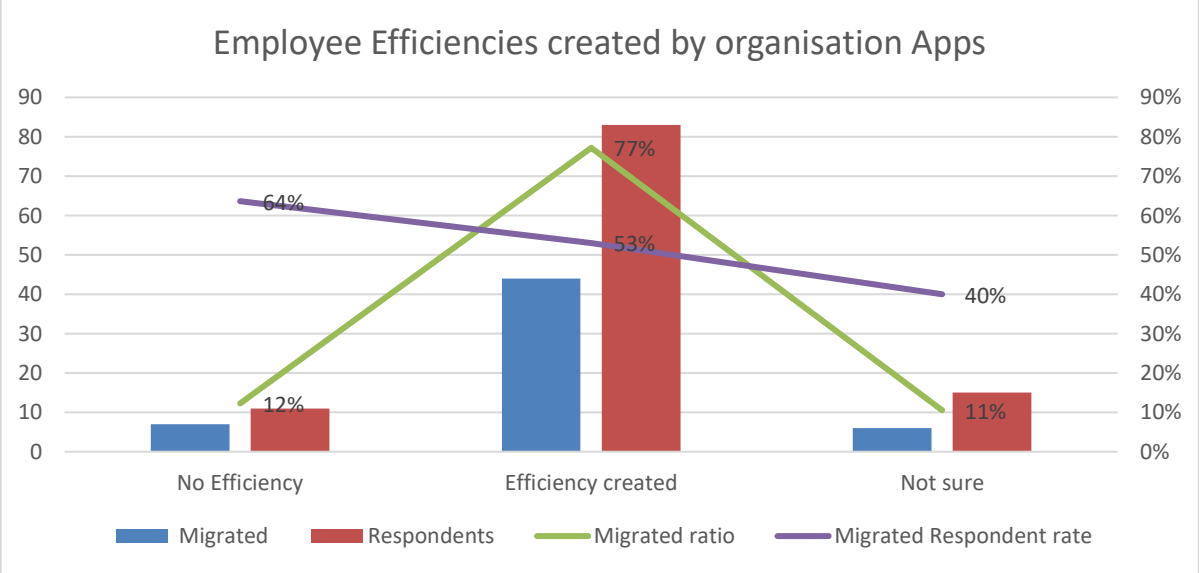
Looking at the province from which the respondents work, the migration trend shows that numerous (60%) of the respondents valued the work-from-home benefit of saving money who also migrated. There were 43% of respondents who work-from-home and valued family time who had migrated to their place of work. 35% respondents value the time-saving benefit derived from working from home, who also migrated. There 25% of respondents who said they had derived the value of working effectively when working from home and these had also migrated. 25% who migrated but had noted that they have derived no benefit from working from home. Respondents who migrated to their work place responded mostly from Gauteng and their distribution was as follows: 76% of the migrants found value in saving money, 22% of those who migrated found that working from home saves time, 17% indicated that work from home provided them more family time. For the rest of the respondents who had migrated to other provinces for work, only 2% found the work-from-home benefits of saving money and saving time.

Figure 4.27 Migration based on organisational App presence



The above graph (Figure 4.27) depicts the kind of organisations the respondents work in from an App presence perspective. As can be seen, 104 of the 110 respondents who are employed (95%) work in an organisation with an App presence. The migration patterns highlight that there is a slightly higher rate of migration for respondents who work at an organisation with an App, a slightly similar rate is depicted for those who work at organisations that do not have an App. Others did not know whether their organisation had an App or not.

Figure 4.28 Work from home arrangement and organisational App efficiencies



The recent developments in terms of covid-19 have led to an accelerated adoption of technology. Organisations have been swift in the enabling of their employees to facilitate their jobs from home effectively. This has led to many organisations enabling employees from a digital perspective, and many have opted to do this via the use of an App. Earlier, it was seen that 95% of the employed respondents were working for organisations that have an App. Figure 4.28 shows that there has been migration across the various cohorts of respondents. Of the employed population, those who derived no value from the organisation's App migrated (12%) as well as those who found value (77%), the same was observed for those who were not sure whether there was value to be derived (11%).

Figure 4.29 Chi Square test for organisational work-from-home practice and migration

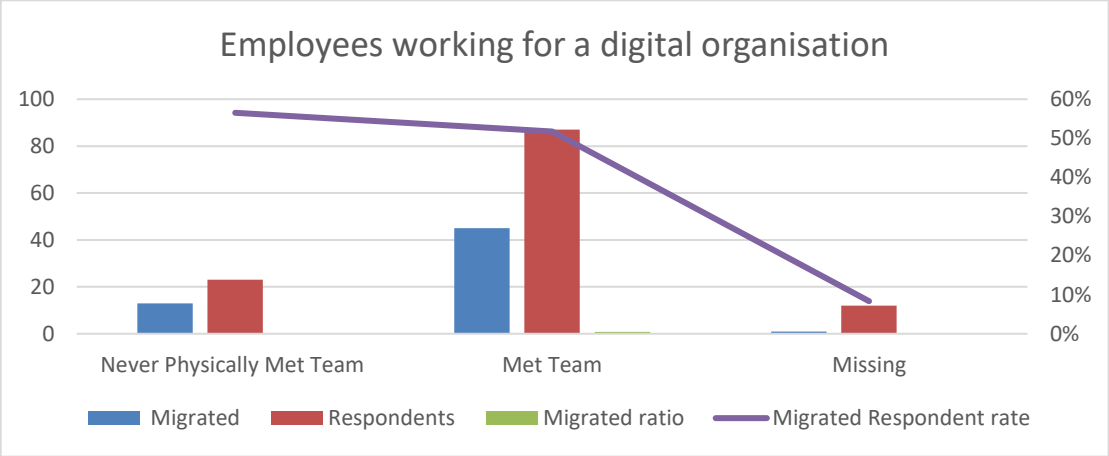
Chi-Square Tests

Value	df	Asymptotic Significance (2-sided)
15.044[a]	8	.058
110		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .21.

An evaluation on whether statistically, there was a relationship between the organisation's enablement of employees to work from home and migration. Using crosstabulation, a chi-square test of independence was performed to examine the relation between the variables mentioned above. The relationship between these variables was not found to be significant, X2 (1, N = 110) =15.0, p = .058. The organisation's enablement of its employees to work from home is by chance likely to influence one's migration decision.

Figure 4.30 Employees factor effect on urban migration



The figure above showcases that there are employees who have met their teammates since they started their jobs and there are those who have not. Looking at the employees that approximately 20% of the respondents had not met their teammates, whereas approximately 74% had met their teammates. Linking this to the view in Figure 4.27 that depicts that 95% respondents who are employed.

Figure 4.31 Chi Square test between physically meeting team and migration

Chi-Square Tests

Value	df	Asymptotic Significance (2-sided)
.749[a]	2	.688
.735	2	.693
.000	1	.985
110		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.81.

There was no significance in the relationship between the organisations with teammates who haven't met their teams and migration.

Figure 4.32 Summary of the hypotheses of the study

Theme	Hypothesis	Result	Outcome
Migration – Employee province of origin	There is no relationship between Province of origin and migration	.000	Reject
Migration – employee level of education	There is no relationship between level of education and migration	.037	Reject
Online platform services: work-from-home & migration	There is no relationship between the ability working-from-home and migration	.058	Accept
Online platform services: physically met team & migration	There is no relationship between teams physically meeting their teammates and migration	.688	Accept

5. Discussion

5.1 Platform solution factors and urban migration

The trends found in the study of intercountry migration within the context of South Africa reflected findings similar to those in the literature review. The people migrated to areas with a strong presence of infrastructure and most of the people who were leaving, were from rural areas – leaving to urban areas. Employer location was also found to be a significant driver in terms of the migration decision. The employee's level of education as well as employment availability (which is predominantly in urban areas) were found to be significant drivers of migration. The hypothesis that there is no relationship between employer and migration or employee and migration were therefore rejected. The relationship between the employee working from home and their decision to migrate was a less significant at (.058). however, it was found that the team members meeting each other physically had insignificant bearing on their migration decision.

Employee migration decisions

The concern noted in the literature regarding the burden of migration on infrastructure is still a real challenge as observed in the number of respondents who have subsequently migrated to an urban area such as Gauteng (Mlambo, 2018). Respondents from Gauteng were found to be less likely to migrate and this further supports the suspicion that pull factors are strong in the urban areas where infrastructure is present in support of the daily basic needs of the population. Push factors were found to be prominent in rural areas which is explained by the respondents who moved from rural areas to more urban areas when they had the education or other resources such as employment to do so. Prior work alluded to a shortage of skill in the rural areas as the skilled resources go to urban areas to seek out better opportunities (Lavecchia, 2020). This manifested itself in the research as follows: respondents who showed the highest levels of migration,

Figure 4.12, were those who had attained the highest level of education as well as those who obtained employement. These respondents attained full-time employment in provinces outside their province of origin and this impacted their decision to migrate. This further supports that businesses looked to setup operations in areas that support them and not many businesses are pursuing rural areas as places to base their operations. This exacerbates the trend which highlights rural economies as underserved. Amongst others, it was discovered that the age of the respondents did not materially drive whether they would migrate or not – which is a different finding to a contribution made in an earlier study (Zhang, Sun, Hu, Yang, & Shen, 2021). Respondents were also not observed to be making a distinct decision in terms of migration based on their gender.

Online platform services as migration enablers

Looking at platform solution factors identified in the literature, it was observed that these new technology solutions were already at play in many economies. Due to the covid-19 pandemic, organisations have had to pivot in order to keep the businesses running and sustain themselves. Many business had to shutdown as a general observation due to an inability to adjust during hard lock-down in South Africa. Those who were able to maintain operations through the work-from-home enablement would have seen the benefit of accelerated technological adoption as consumers generally bought more into the idea of ecommerce. Respondents in this research were found to work for organisations where platform enablement was present. Organisations made these online platform services available to the employees, but when the responded were tested on preference, some found value in working from the office, which would mean being physically present at the place of work (countering the efficiency sought in this study). A majority of the respondents outlined that they would prefer a blended working arrangement or to work from home. In terms of resources which would make it easier for them to work from home, respondents noted that the majority of them were well-equipped while a few noted that they needed workstations to work from home. In terms of key benefits, respondents also mentioned that working from home saves them money

and time. While these developments are factors which can be utilised to drive down migration, they were not the key reason why respondents migrated to the urban areas – the theory is that the efficiencies may have occurred after the respondent's decision to migrate. Many organisations (95% of those who employed this study's respondents) had an existing App which they sometimes used to create efficiencies for employees, customers, and other stakeholders. These developments meant that while they are valid in addressing the structural voids identified in the literature, the technologies will need time to be adopted before significant change and benefit can be realised. This would lead to people stimulating the rural economy through staying in the economy they are originally from and those in the urban economy being stimulated by people who are originally from there. Businesses would need to allow for the flexibility that allows both these types of employees to facilitate their work in an effective manner. The study outlined that there were no strong relationships between platform efficiencies which have been realised and migration. While unexpected, this view can be explained by the infancy of the platform efficiencies. People may not have built context around how this has enabled them as their current context for moving to their current area of residence is for better opportunities because of the skills they had. The suspicion is that if online platform services are given time, and organisations make work-from-home policies a standard, more respondents will in future find benefit in remaining in their place of origin.

6 Conclusion

The purpose of the study was to add to the body of work in respect of urban migration as well as factors such as employee, employer, online platform service and family which may assist in the reduction of rural-to-urban migration challenges. In addition, to evaluate how a new approach can be adopted to aid in curbing the burden migration is placing on both the rural economies (by taking away skilled workers) and the urban economies (by flooding them with too many people leading to infrastructructure strain). Most importantly, this body of work achieves the evaluation by overlaying these two aspects in one study, one observes simplistically

how certain factors of online platform services can be utilised to facilitate a change in migration patterns in South Africa – a key assessment for this was how organisations pivoted to enable employees and customers or stakeholders to engage with them digitally during the course of the pandemic. This research is adds a new perspective to the existing body work and therefore allows for pioneering ways to resolve old and known challenges.

The use of online platform service as levers in impacting urban migration decisions

The research evaluated whether online platform service efficiencies such as how the ability to work from home can be leveraged in impacting household migration decisions. One school of thought says that this could not truly be proven as the decision to migrate for a majority of the respondents happened before the online platform service efficiencies became a generally accepted “new normal” – whereby adoption catapulted only after the pandemic began. While this is valid, it does not discount the fact that once the adoption took place, there was also a general movement amongst employees whereby they were empowered by organisations to work from home, and would even go and work from their place of origin (which is something that would have been significantly difficult to facilitate in periods prior to the pandemic). Respondents also noted that the enablement to work from home afforded them the flexibility to migrate and, using a chi squared test, the significance of this phenomenon was ascertained. Therefore, if organisations could allow for more of this fluidity in the future, the economy could enjoy a new trend where economic stimulation could be facilitated by people who work for organisations they’ve never been to physically, as well as collaborating with teammates they’ve never met physically. This may alleviate infrastructure pressures in the urban areas and possibly stimulate effective economic activity in rural areas in future – potentially leading to the gradual urbanisation of more economies within South Africa.

The pitfalls and benefits associated with the enablement of online platform services to reduce urban migration

The pitfalls associated with this “new normal” as identified by the respondents is the inability to separate work from their personal life, thus leading to work-life balance issues which may cause challenges for both the organisation and the individual down the line. The second observed pitfall was the distraction as people need to repurpose their homes into offices, family members may not understand boundaries as yet and thus frustrate the employee’s productivity. Lastly, some of the respondents alluded to the facilitation of this form of working as being expensive.

The benefits associated with the enablement of online platform services to the rural population were recorded as follows by the respondents: quite a number of the respondents (66%) highlighted a money saving benefit which is realised through things such as avoiding the travelling to and from work, during lock-down overall travelling was also kept at a minimum. The second most highlighted benefit was the benefit of time saving, which is closely linked to the first in that people who no longer had to drive to work (1) benefit from the saved fuel costs, (2) benefits from the time spent on the road and in traffic, amongst many other examples. Another benefit was the ability for the respondents to spend more time with their families due to this new way of working. A minority specified work efficiency as an added benefit.

Recommendation for further studies

The chosen approach is not without limitations. There was not enough time to fully collect data for a more comprehensive analysis. Where the survey tool may have been placed could have mostly attracted the type of employed and learned respondents. Also, because the definition of what constitutes a rural area and what does not – and the lack of uniformity which has been found to vary from one country to another, the results may look different when applied in a different geographical area. It is also recognised that the respondents may not have understood the context of the questions in the instrument and thus have provided answers according to their perspective which would be different from the study’s perspective.

However, the survey tool was tested to ensure that it covers the questions in a manner that would be simple for anyone with a fundamental level of English proficiency to understand. While the online platform services were simplified to “Apps” in the study, there was still a gap between migration and how the platform solution assists in this regard. It was this way as the platform solution journey is currently in its infancy, with only a few people who understand its principles and when and how their interactions are conducted on the platform. This study was largely on categorical data which made it difficult to prove with certainty the reliability of the outputs, instead the study was able to prove the relationship between variables and the significance thereof. Also, future studies of this kind may lead to different results depending on available technologies and how the population has adopted online platform services and utilised it to influence migration trends. Finally, it is encouraged that colleagues use this research to build on this important topic and perhaps refine the research by addressing the gaps identified above, leading to a more comprehensive view.

A study that specifically looks at the economic impact of reduced rural-to-urban migration on both the rural and urban economies is recommended. Due to the enablement provided by online platform services during and post the pandemic, it is recommended that efficiencies that are realised with this model are also tested from a rural and an urban perspective. Lastly, a study could be conducted on the effects of online platform services on relationships (employer-employee, family relationship, team relationship).

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