

INVESTIGATING THE RELATIONSHIP BETWEEN TRANSPORT AND LABOUR DISCOURAGEMENT IN SOUTH AFRICA

JM VAN DER MERWE^{1*} and SC KRYGSMAN^{1}**

¹Department of Logistics, Stellenbosch University, Stellenbosch 7600

*Tel: 021 808 4172; Email: jacomienvdm@sun.ac.za

**Tel: 021 808 2624; Email: skrygsman@sun.ac.za

ABSTRACT

South Africa recorded an unemployment rate of 34.4% in 2021, its highest since the first Quarterly Labour Force Survey was conducted in 2008. South Africa has also seen a rise in the number of discouraged work seekers, reaching 3.3 million individuals in 2021. These are individuals who want to work, but are discouraged to actively search for employment. This research seeks to determine whether the rise in transport cost impacts on an individual's decision to search for employment. Descriptive statistics are used to report on the discouragement and transport trends between 2008 and 2020, making use of the Quarterly Labour Force Surveys, National Household Travel Surveys and National Income Dynamic Surveys. This research indicated the disproportionate household expenditure on transport to search for employment between different income groups. A panel regression model indicated a positive relationship between transport cost increase and discouragement. Understanding the impact of transport cost and affordability on job search can assist with strategies to reduce discouragement and long-term unemployment.

1. INTRODUCTION

There has been a sustained increase in unemployment over the past decade with South Africa reaching a narrow unemployment rate¹ of 34.4% for the second quarter of 2021; the highest recorded unemployment rate since 2008 (Stats SA, 2021a). South Africa is also facing a rise in discouraged work seekers. These are individuals who want to work but are too discouraged to actively search for employment. The number of discouraged work seekers increased from 1.1 million individuals in the first quarter of 2008 reaching 3.3 million individuals in the second quarter of 2021 (Stats SA, 2008; Stats SA, 2021a). This dramatic increase in discouraged work seekers is not a trend experienced by many other countries. In South Africa the number of discouraged work seekers make out 14% of the total labour force compared to the global average of only 2.4% (ILOSTAT, 2022).

In South Africa, the number of discouraged work seekers increased in parallel with the deterioration of South Africa's transport system that left many commuters captive to inefficient and unaffordable public transport modes to reach economic opportunities. Rail is seen as the backbone of passenger transport (Department of Transport, 2017), but there has been a dramatic decrease in passenger numbers from approximately 600 million rail passenger journeys in 2008 to approximately 175 million passenger journeys in 2019 (Stats SA, 2021b). These passengers had to resort to other more expensive transport modes due to the deterioration of rail services.

¹ Narrow unemployment rate only includes individuals who are unemployed and searching for work and excludes individuals who are unemployed and not searching for work.

Factors influencing a person's decision to become discouraged have been largely ignored in labour research with research predominantly studying factors influencing the employed and unemployed (actively searching for work). This is also true within transport literature where studies have focused on the impact of proximity (distance), accessibility and mobility on the employment status of an individual, but not on discouragement (Kain, 1968; Grengs, 2010).

This paper aimed to understand to what extent transport influences job search and whether it is a driver of discouragement within South Africa.

2. LITERATURE REVIEW

The International Labour Organisation (ILO) defines discouraged work seekers as “people who want to work but are not seeking work because they believe no suitable job is available for them” (ILO, 2015). This definition varies across countries, normally differentiating between the time periods of not searching for work. South Africa uses a four week reference period whereas Heslin et al. (2012) in the United States and Byrne and Strobl (2004) in Trinidad and Tobago refers to 12 months and 3 months non-search time respectively. Due to these discrepancies and an overall lack of a clear definition, the ILO argues that discouraged work seekers should fall outside the labour force and be considered part of the non-economically active (NEA) and that countries should only report on their strict unemployment rate, excluding discouraged work seekers. Researchers contend that it is important for countries which are characterised by high unemployment and with a large difference between the strict and broad unemployment rates, to distinguish discouraged work seekers as a separate unemployment group (Kingdon and Knight, 2006; Yu, 2013; Byrne and Strobl, 2004; Verick, 2012).

Kingdon and Knight (2000) argue that the decision to search for employment is not only voluntary, but can also be an outcome of constraints. The importance of policy measures to distinguish between the unemployed and discouraged is motivated by Kingdon and Knight (2000), Yu (2013), Byrne and Strobl (2004) and Verick (2012). They indicate that ignoring the discouraged from the unemployment rates can hide structural unemployment problems.

Factors identified to influence the decision for job search in previous literature included gender, age, education level, household income, urban or rural geotype and the employment status (differentiating between formal and informal employment) of a job seeker's spouse (Verick 2012; Byrne and Strobl, 2004; Kingdon and Knight, 2006). Byrne and Strobl (2004) identified that spatial elements (whether individuals are located in an urban or rural area) influence the choice of searching for employment for a specific gender.

The impact of search cost on the probability of an individual to search for employment was deliberated on by Banerjee et al. (2008), but did not consider any transport variables to show a relationship between discouragement and transport in the analysis. Kingdon and Knight (2006) aimed to understand the impact of transport, classified as “remoteness”, in their analysis. They found an inverse relationship between the distance individuals must travel to opportunities and the probability of an individual searching for employment. This finding supports those of Wilson and Ramphela (1989), de Lange (2013) and Philips (2014) who also indicated that transport and other job-search costs can prohibit individuals from searching for employment.

The lack of job market information or knowledge by the job seeker decays with increased distance between households and job opportunities. Manning and Petrongolo (2017) confirm that job search is local and that individuals would rather search for opportunities closer to their residence compared to jobs requiring great travel distances. In addition, the search intensity of individuals reduces with an increase in transport cost associated with job search in South Africa and Ethiopia (Banerjee and Sequeira, 2020; Abebe et al., 2016). These studies showed that through educating job seekers on job market information to manage their expectation on potential job opportunities available, their expectation on wage, and providing subsidies to reduce the job search cost, increased their search intensity and probability to find employment.

Patacchini and Zenou (2005) showed that captive commuters who only have access to, and can afford public transport modes influences the frequency of job search compared to individuals having access to private transport. In South Africa most low-income households are captive to public transport modes and rely on public transport to travel to job opportunities (Kerr, 2017).

The literature indicated the importance of treating discouraged work seekers in South Africa as a separate unemployed group and to identify policy recommendations specifically addressing the employment needs of this group of individuals. It also identifies the gap in understanding the impact of transport on discouragement over time.

3. DISCOURAGEMENT AND JOB SEARCH

Figure 1 shows the significant increase of discouraged work seekers in South Africa between 2008 and 2021 according to the Quarterly Labour Force Survey (QLFS). The number of discouraged work seekers as a percentage of the labour force² doubled over the 14-year period (Stats SA, 2021c).

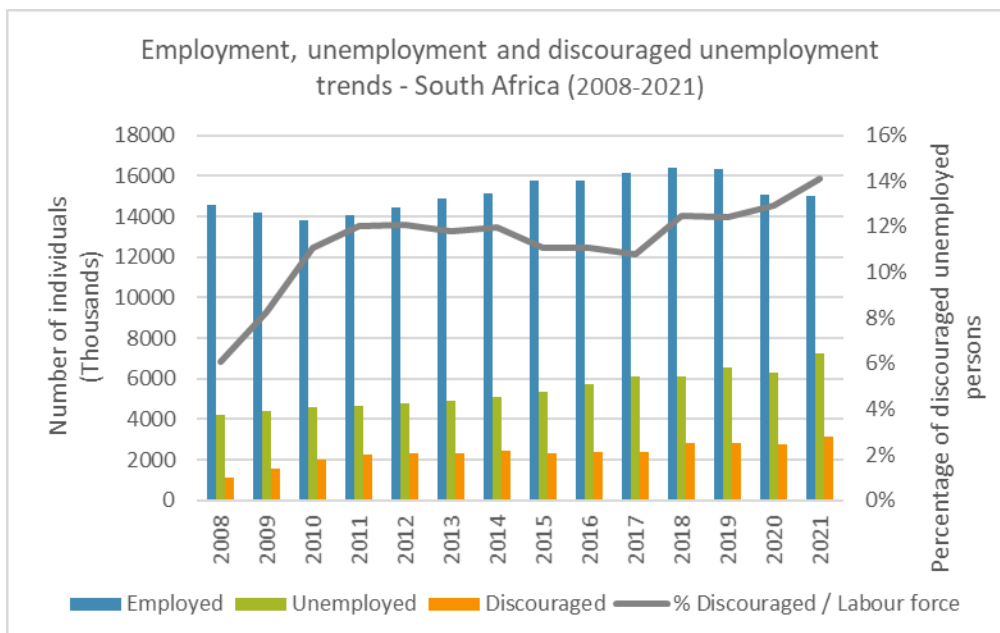


Figure 1: Employment, unemployment, and discouraged unemployment trends - South Africa (2008-2021)

² Sum of all employed and unemployed (looking for work) individuals in South Africa.

The QLFS lists 16 reasons for not searching for employment of which respondents can only choose one. Three are related to transport and proximity to opportunities:

- Reason 1: “No transport available”.
- Reason 2: “Lack of money for transport to look for work”.
- Reason 3: “Jobs not being available in the area”.

Over the past 12 years the percentage of discouraged work seekers indicating one of the above three reasons for discouragement increased by approximately 20% and now account for roughly 70% of all discouraged work seekers in 2019 (Stats SA, 2021c).

The National Income Dynamic Survey (NIDS) collects income and expenditure data of individuals and households in South Africa and reports on (un)employment characteristics and individual’s job search activities. Five waves were conducted, Wave 1: 2008; Wave 2: 2010/11; Wave 3: 2012; Wave 4: 2014/15 and Wave 5: 2017. Questions on job search provided insight into the first two reasons for discouragement as revealed by the QLFS above.

Table 1 summarise the results from the QLFS and NIDS datasets on an individuals’ employment search method. It indicates that approximately 50% of respondents make use of enquiring in-person at workplaces, farms, factories to find employment³. This popular search method requires job seekers to travel to potential employers and can result in high transport expenditure to find employment compared to other methods.

Table 1: Employment search method

Employment search method	QLFS	NIDS
Sought assistance from relatives or friends	52%	75%
Enquired at workplaces, farms, factories or called on other possible employers	52%	47%
Placed / answered advertisements	43%	48%
Searched through job advertisements / searched the internet	32%	29%
Waited / registered at employment agency / trade union	12%	15%
Waited at the street side where casual workers are found	6%	9%
Looked for land, building equipment or applied for permit to start own business/farming	3%	5%
Sought Financial assistance to look for work or start a business	1%	2%
Sample size (n=)	6621	2719

Source: Stats SA 2021c (2017 q4) and SALDRU 2008-2017 (NIDS wave 5)

The NIDS asked job seekers how much they spent on travel costs associated with looking for work in the previous week and how they fund this employment search travel cost. Travel cost typically imply travelling to an internet café, hand delivering CVs to employers and enquiring at workplaces as well as travelling to job interviews. The majority (62%) of job seekers indicated that they borrowed money from family within their household to fund the travel cost associated with job search (Table 2).

³ Respondents could choose more than one search method.

Table 2: Source of money for transport during job search

Source of money used for transport during job search	Frequency	Percent
A family member in the household	779	61.78
Family member outside the household	221	17.53
My savings	97	7.69
A friend outside the household	79	6.26
My grants	74	5.87
A friend in the household	8	0.63
A money lender	3	0.24
Column total	1,261	100

Source: SALDRU 2008-2017 (NIDS all waves)

The percentage transport cost associated with searching for work⁴ (T) of all individuals (i) within a household (j) over the total household expenditure⁵ (E_{jk}) was calculated using the NIDS data. This ratio (r_{jk}) for household j falling within income quartile k in equation 1 gives an indication of affordability of household transport employment search cost, and is calculated as:

$$r_{jk} = \frac{\sum_{i=1}^{N_j} T_{ij}}{E_{jk}} * 100 \quad k = 1, \dots, 4, \quad (1)$$

where T_{ij} is the transport expenditure on job search of individual i in household j and N_j is the total number of individuals in household j .

The mean affordability by income quartile (\overline{R}_k) was calculated using

$$\overline{R}_k = \frac{1}{H_k} \sum_{j=1}^{H_k} r_{jk} \quad k = 1, \dots, 4, \quad (2)$$

where H_k is the total number of households in income quartile k .

Households falling within the lowest expenditure⁶ quartile spent on average 12% of their total household expenditure on transport search cost⁷ compared to 2.6% for households falling within the highest household expenditure quartile (Table 3). The Bonferroni test indicates that the mean for the lowest expenditure quartile is significantly different from the other income quartiles. This disproportionate transport search cost expenditure between lower and high-income households could fuel existing high-income inequality in South Africa.

⁴ Average includes a cost of zero for job seekers who did not search for employment in the previous week.

⁵ Includes total food expenditure, total non-food expenditure, rental expenditure and imputed rent for owner-occupied housing (Brophy et al., 2018).

⁶ Household expenditure is considered a proxy for household income.

⁷ Mean monthly household expenditure on transport cost associated with searching for work varied between R111 in 2008 to R154 in 2017. Assumes job seekers search only one week per month.

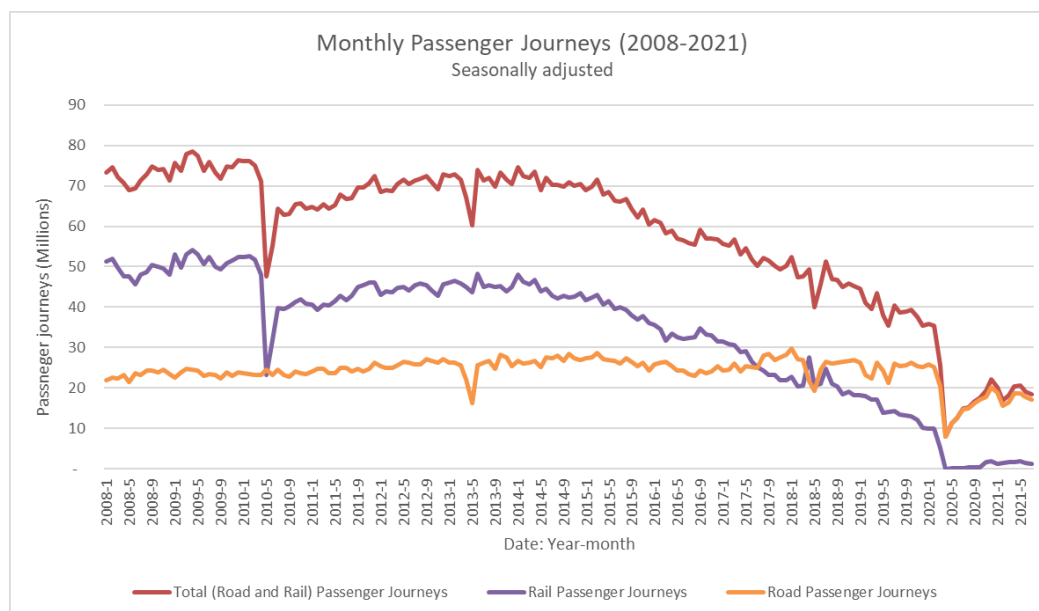
Table 3: Mean percentage household expenditure spent on transport search cost by household expenditure quartiles

Quartiles - (Expenditure range)	Mean (R_k)	Std. Err.	Bonferroni Group
1 - (R74-R1386)	12.26	0.6159584	
2 - (R1387-R2303)	7.13	0.6159584	A
3 - (R2304-R4161)	5.25	0.6159584	A
4 - (R4163-R211531)	2.65	0.6159584	

Note: Means sharing a letter in the group label are not significantly different at the 5% level. Source: SALDRU 2008-2017 (NIDS all waves)

The third reason for discouragement mentioned in the QLFS, “Jobs not being available in the area” gives an indication of the employment search space of individuals. An increase in travel cost and travel time decreases the employment search space of individuals and result in limited access to work opportunities reachable within a certain travel time and cost budget (Van der Merwe and Krygsman, 2020).

The increase in discouragement within South Africa coincides with the rapid deterioration of South Africa’s rail services in the main metropolitan areas. Monthly rail passengers decreased by approximately 80% between 2008 and the start of 2020 according to the National Land Transport Survey (Stats SA, 2021b). Figure 2 indicates that road transport passengers, which consist predominantly of conventional bus services, remained steady over time which indicates that captive public transport commuters previously choosing rail are now left with no choice but to resort to a more expensive mode of transport such as minibus taxis.



Source: Land Transport Survey (Stats SA, 2021b)

Figure 2: Monthly Passenger Journeys by rail and road between 2008 and 2021

This modal share decrease is confirmed by comparing the 2013 and 2020 National Household Travel Survey (NHTS) results indicating a shift in the main metropolitan areas from rail to minibus taxis and private transport (Table 4). Overall, there was a move away from cheap public transport modes to more expensive public transport modes and then to expensive private transport.

Table 4: Mode share and percentage change in main mode to work between 2013 and 2020 by metro

Year	Mode	Western Cape: City of Cape Town	KwaZulu-Natal: eThekweni	Gauteng: Eku, CoJ, CoT ⁸	Country
Mode share (2013)	Train	19%	5%	8%	5%
	Bus	9%	7%	5%	8%
	Minibus Taxi	16%	40%	31%	26%
	Private - driver	40%	30%	39%	31%
	Private - pass ⁹	8%	6%	6%	8%
	Walk	8%	11%	11%	21%
	Other	1%	1%	1%	1%
Mode share (2020)	Train	3%	2%	2%	1%
	Bus	9%	4%	4%	6%
	Minibus Taxi	26%	39%	37%	28%
	Private - driver	46%	39%	39%	36%
	Private - pass	9%	7%	6%	7%
	Walk	7%	7%	12%	20%
	Other	0%	0%	1%	1%
Mode shift (between 2013 & 2020)	Train	-15%	-3%	-6%	-4%
	Bus	0%	-3%	-2%	-2%
	Minibus Taxi	9%	-1%	7%	2%
	Private - driver	6%	10%	0%	5%
	Private - pass	2%	2%	0%	0%
	Walk	-1%	-4%	1%	-1%
	Other	0%	0%	0%	0%

Source: NHTS (2021d)

Table 5 indicates the mean transport cost¹⁰ to work by main mode for the three main metropolitan areas and the country. In addition, it indicates the annual percentage change in monthly transport cost to work between 2013 and 2020. The recent 2020 NHTS results indicate that minibus taxi monthly expenditure and private transport (driver) expenditure is around 1.6 times and 3.6 times higher respectively compared to train.

The CPI increased from 81 to 113 over the 7 year period between 2013 and 2020. The average transport cost for minibus taxi users, which represents the highest public transport mode share in 2020, increased around 1.7 times the rate of inflation. Bus transport also increased over and above inflation within all cities and the country. Train cost increased with approximately the same or lower than inflation, except for the City of Cape Town. Across all modes, the country has experienced a travel cost increase higher than inflation.

In addition to the increase in travel cost, commuters are also faced with increased travel time. Rail services has deteriorated to such a degree that a one-way trip to work takes on average 107 minutes. Table 6 shows that all public transport modes experienced an increase in travel time within metropolitan areas.

⁸ Eku - City of Ekurhuleni Metropolitan Municipality; CoJ – City of Johannesburg; CoT – City of Tshwane

⁹ Pass - Passenger

¹⁰ Nominal costs

Table 5: Monthly transport cost (Rand) to work and annual percentage change in monthly transport cost to work by main mode between 2013 and 2020 by metro

Year	Mode	Western Cape: City of Cape Town	KwaZulu Natal: eThekweni	Gauteng: Eku, CoJ, CoT	Country
2013	Train	R 345	R 286	R 465	R 403
	Bus	R 471	R 582	R 583	R 502
	Minibus Taxi	R 505	R 557	R 630	R 563
	Private - driver	R 1 532	R 1 231	R 1 372	R 1 264
	Private - pass	R 630	R 660	R 902	R 680
	All modes	R 928	R 775	R 954	R 838
2020	Train	R 546	R 370	R 509	R 509
	Bus	R 669	R 794	R 1 108	R 774
	Minibus Taxi	R 779	R 888	R 919	R 825
	Private - driver	R 1 273	R 2 127	R 2 051	R 1 814
	Private - pass	R 611	R 973	R 1 011	R 799
	All modes	R 987	R 1 407	R 1 427	R 1 268
Annual percentage change	Train	8%	4%	1%	4%
	Bus	6%	5%	13%	8%
	Minibus Taxi	8%	8%	7%	7%
	Private - driver	-2%	10%	7%	6%
	Private - pass	0%	7%	2%	2%
	All modes	1%	12%	7%	7%

Source: NHTS (2021d). Note: these are nominal costs.

Table 6: One-way travel time (minutes) to work and total percentage change in one-way travel time (minutes) to work by main mode between 2013 and 2020 by metro

Year	Mode	Western Cape: City of Cape Town	KwaZulu Natal: eThekweni	Gauteng: Eku, CoJ, CoT	Country
2013	Train	79	80	102	91
	Bus	75	67	93	80
	Minibus Taxi	54	59	64	56
	Private - driver	43	42	50	43
	Private - pass	46	49	55	45
	Walk	36	41	36	34
	All modes	54	53	60	50
2020	Train	106	105	107	107
	Bus	92	74	95	84
	Minibus Taxi	73	69	71	63
	Private - driver	48	48	52	44
	Private - pass	54	50	55	49
	Walk	25	41	34	31
	All modes	59	58	60	50
Total Percentage change between 2013 and 2020	Train	35%	31%	5%	18%
	Bus	23%	11%	2%	6%
	Minibus Taxi	35%	18%	11%	12%
	Private - driver	12%	15%	4%	3%
	Private - pass	18%	1%	-1%	9%
	Walk	-31%	-1%	-4%	-8%
	All modes	10%	10%	0%	1%

Source: NHTS (2021d)

4. RELATIONSHIP BETWEEN DISCOURAGEMENT AND TRANSPORT COST

A panel dataset with quarterly employment data by province was created using the QLFS cross-sectional datasets from 2008 quarter 1 to 2019 quarter 4 and sampling weights. Variable descriptions are indicated in Table 7.

The Consumer Price Index (CPI) for public transport was merged with this panel dataset (Stats SA, 2021d). The CPI¹¹ reflects the pure price movement of public transport over the period.

Table 7: Panel dataset variable description

Variable	Description
province	province (9 provinces)
quarter	quarter (Q1-Q4)
year	year (2008-2019)
time_id	time variable (2008q1-2019q4)
employed	Total number of employed
unemployed	Total number of unemployed
discouraged	Total number of discouraged work seekers
reason_trans	Number of individuals who indicated that the reason for discouragement was transport related
labour_force	Total of employed and unemployed (strict definition ¹²).
trans_percent_strict	Ratio between "reason_trans" and the labour force
CPI_PT	CPI for public transport (Index base: 2016=100)

A fixed effect model was estimated to investigate the impact of increased transport cost, measured by CPI for public transport, and employment discouragement in South Africa.

Equation 3 shows the model specification. The model includes a weight to account for each province's population and the error terms clustered by province.

$$Y_{it} = \alpha_i + \beta X_{it} + u_{it} \quad (3)$$

Where:

Y = Dependent variable (DV): "trans_percent_strict"

X = Independent variable (IV): "CPI_PT"

α = intercept

β = coefficient for that IV

$i = 1, 2, \dots, 9$ (provinces)

$t = 1, 2, \dots, 48$ (quarters)

u = error term

The results in Table 8 indicated for a 1 index point increase in public transport CPI, the number of discouraged work seekers, as a percentage of the labour force, increased with 0.057 percent. The low R squared value indicate that there are many other factors, i.e., household, individual and geographic characteristics, not included in this model that could

¹¹ CPI for public transport is the only measure of transport cost increase which is available on a quarterly and on a provincial level which can be linked to the QLFS data.

¹² Strict labour force definition includes all employed and unemployed (excluding discouraged) individuals.

explain changes in discouragement. This model however indicated that consumer price increase in public transport has a very small but significant, positive relationship with percentage discouragement.

Table 8: Panel regression analysis

Fixed effects	
Dependent variable: trans_percent_strict	
	β (sig)
CPI_PT	.0570797 (0.006)*
Intercept	7.512052 (0.000)*
	Model- Significance
F-stat (Prob > F)	12.75 (0.0060)*
R-Squared	
within	0.1328
between	0.0741
overall	0.0272

Note: *represent significance at 1% level

5. CONCLUSION

The results indicate that a higher percentage of individuals attribute transport problems and proximity to jobs as the reasons for increased discouragement. Transport factors driving discouragement have largely been ignored in literature, specifically in other countries, where discouragement as a percentage of the labour force is not nearly as high as in South Africa.

A high percentage of individuals make use of job search methods that requires travelling to potential employers and predominantly fund these search cost from household income. The NIDS results show that lower income households spend a significantly higher percentage of their household income on transport search cost compared to higher income households. Governmental and private company job portals focused on entry-level jobs should be made more accessible to individuals to reduce their overall job search cost.

Rail has seen a dramatic decrease in passengers in recent years as rail commuters are experiencing on average an almost two-hour one-way commute trip to work. Rail commuters experience the lowest monthly transport cost compared to other public and private transport modes, however the modal shift from rail to other more expensive modes of transport resulted in the average cost of transport to work increasing over and above inflation.

One of the macroeconomic objectives for justifying public transport subsidy includes to lower transport cost for individuals to access employment opportunities and to make job search more affordable. This research shows that an increase in public transport cost, could have a small, but significant impact on discouragement within South Africa. The continuous weakening of South Africa's public transport infrastructure and services in addition to poor spatial planning increasing the distance between the location of residents and employment could lead to long term discouragement making it difficult for the unemployed to be absorbed back into the labour market.

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