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Fibre connectivity and economic participation in a South African township

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ABOUT THIS REVISION:

This note revises the earlier BER publication, *Fibre connectivity and economic participation in a South African township*. It updates the evidence, estimation and interpretation while retaining the earlier note's focus on employment.

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Executive Summary

Affordable home broadband shows promise in helping township residents access formal work. This second BER research note on broadband in South African townships examines whether fibre in Kayamandi helped residents find work, move into formal employment or become self-employed.

The study follows **609 dwellings**, comparing homes that received fibre earlier with those reached later. Changes between the 2022 and 2023 surveys provide evidence on the early employment response, assuming that the two groups would otherwise have experienced similar changes.

The findings point towards a shift to formal employment, concentrated in full-time work. The direction remains positive when individual rollout areas are left out and when the comparison is restricted to respondents who appear to be the same people across surveys. This consistency strengthens the finding, although the result narrowly misses the statistical significance threshold in some of the specifications. Evidence for employment overall is less clear. The study therefore points towards a change in the composition of work without establishing net job creation. Because different residents may answer the survey at the same dwelling, it also cannot confirm that particular individuals moved into better jobs.

Cheaper, reliable internet may help residents maintain contacts, find information and compete for opportunities. The companion research note on online behaviour finds increased social-media use,¹ consistent with connectivity helping people sustain useful networks. Both notes examine the early response through 2023, and longer follow-up is needed to assess lasting gains.

Digital inclusion can contribute to South Africa's growth agenda by widening access to economic opportunity. Overall, our findings suggest that extending connectivity alongside skills, reliable electricity and conditions that help businesses expand can enable more residents of South African townships to move into better jobs.

¹Fourie, Helanya and Debra Shepherd. 2026. 'The impact of fibre broadband on online behaviour in a South African township'. BER Research Note, revised 5 October 2026.

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Introduction

Affordable, reliable internet can widen access to economic opportunity by making it easier to find work and run a business. These gains have the potential to raise productivity and draw more people into economic activity. Yet causal evidence on how high-speed connectivity changes employment in developing countries remains limited, partly because broadband rollout usually follows commercial viability and demand.

There are several ways in which affordable, fast internet could affect economic participation. Reliable, affordable internet access lowers the cost of finding information, registering on job portals and submitting applications, which may help people compete for jobs advertised online. It can also sustain informal networks through which vacancies and referrals circulate, even when users do not describe their activity as job search. For entrepreneurs, connectivity can reduce the time and cost of making payments, communicating with customers and coordinating with suppliers. It may also make working or running a business from home more feasible.

Hjort and Poulsen's study in the *American Economic Review* provides evidence of the employment gains that faster connectivity can support.² Exploiting the arrival of submarine internet cables and the reach of terrestrial networks across African countries, they found that faster internet increased employment, including among less-educated workers. Firm-level evidence from some countries pointed to increased business entry, productivity and exporting as contributors to job creation, linking connectivity to both employment and the expansion of productive activity.

African studies provide evidence closer to our setting. Research in Nigeria links mobile broadband coverage to increased labour-force participation and employment, particularly among women, alongside higher household consumption.³ In Tanzania, improved coverage is associated with a shift from

²Hjort, Jonas and Jonas Poulsen. 2019. 'The arrival of fast internet and employment in Africa'. *American Economic Review* 109 (3): 1032–79.

³Bahia, Kalvin, Pau Castells, Genaro Cruz, Takaaki Masaki, Xavier Pedrós, Tobias Pftutze, Carlos Rodríguez-Castelán and Hernan Winkler. 2024. 'The welfare effects of mobile broadband internet: Evidence from Nigeria'. *Journal of Development Economics* 170: 103314.

farm work towards wage employment and non-farm self-employment.⁴ A study in Senegal links mobile broadband to improved household welfare, with movement towards formal employment as a possible channel.⁵

The phased introduction of fibre in Kayamandi allows us to examine this relationship in a South African township. We link household surveys to network rollout and compare changes among respondents in dwellings reached earlier with those reached later, accounting for shared changes over time and observed differences between the groups.

Kayamandi adds evidence on what affordable home fibre changes where basic mobile internet is already widely used. The question is whether cheaper, sustained access helps residents participate more fully in the economy, through work, business activity and the networks that support them. This makes the affordability of connectivity relevant to efforts to extend the benefits of growth to South Africa's townships.

⁴Bahia, Kalvin, Pau Castells, Genaro Cruz, Takaaki Masaki, Carlos Rodríguez-Castelán and Viviane Sanfelice. 2021. '[Mobile broadband internet, poverty and labor outcomes in Tanzania](#)'. World Bank Policy Research Working Paper 9749.

⁵Masaki, Takaaki, Rogelio Granguillhome Ochoa and Carlos Rodríguez-Castelán. 2020. '[Broadband internet and household welfare in Senegal](#)'. World Bank Policy Research Working Paper 9386.

Methodology

Data collection

We use fibertime's staggered rollout in Kayamandi to study how affordable, fast internet affects economic participation. The operator installs a Wi-Fi router in every permanently electrified home it passes. Its aerial passive optical network connects several homes to a pole through drop cables, reducing installation costs in a densely populated area.

The network uses a shared service set identifier, so customers can connect within range of any fibertime router, including one outside their home. Someone whose dwelling has not yet been reached may therefore use fibre elsewhere in the township. Our treatment measure records local availability, rather than whether a respondent chose to buy or use the service.

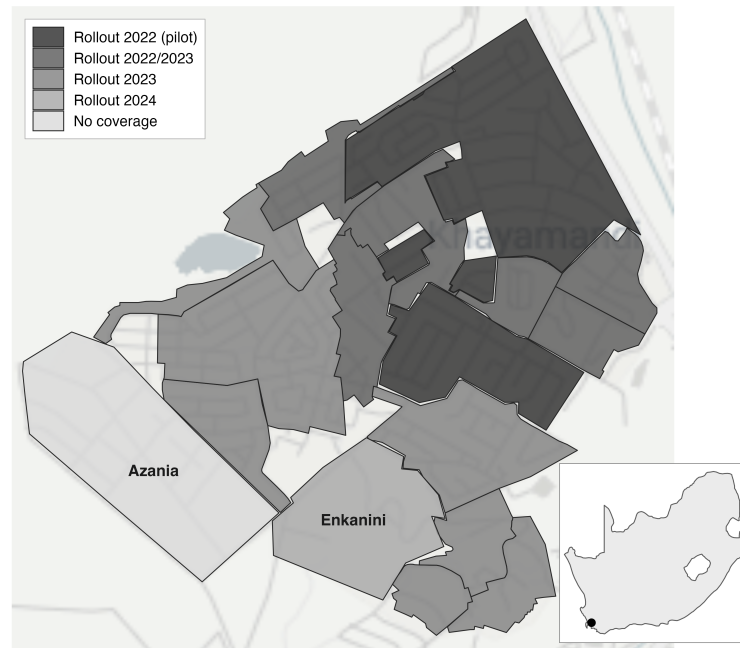
The first formal homes were connected in October 2022 and commercial rollout expanded to formal and informal dwellings during 2023 (Figure 1). Permanent electricity remained a condition for installation. Enkanini (also see Figure 1) entered the rollout after electrification in 2024, while unelectrified Azania remained outside direct router rollout throughout the study period.

Three survey waves coincided with the rollout: August 2022, October–November 2023 and February–April 2025. Sampling covered formal, informal and backyard dwellings. Respondents were adults screened for internet use and involvement in data-purchase decisions; the results therefore do not describe every adult in Kayamandi.

We were able to identify 712 dwellings that appear in all three surveys. The preferred comparison uses 609 eventually reached dwellings: 317 before the 2023 interview and 292 between the 2023 and 2025 interviews. This avoids relying on homes still untreated in 2025 (many of which are located in Azania), which were not eligible for router installation.

Returning to the same dwelling did not guarantee an interview with the same person. The surveys form repeated cross-sections of residents at tracked addresses, rather than a verified panel of individuals. Interviews took place in person in 2022 and 2025. In 2023, enumerators first attempted telephone

Figure 1: fibertime network rollout in Kayamandi



Source: fibertime. Map lines delineate study areas.

recontact and visited the dwelling when contact failed. The Annexure provides robustness checks to assess whether this introduces availability bias that could have altered our findings.

Connectivity changed markedly over the study period. In the preferred sample, the weighted share mainly using fibre or Wi-Fi rose from approximately zero in 2022 to 83.5% in 2025.⁶

⁶Fourie, Helanya and Debra Shepherd. 2026. 'The impact of fibre broadband on online behaviour in a South African township'. BER Research Note, revised 5 October 2026.

Method and limitations

Our preferred estimate compares changes over 2022–2023 between the early and later rollout cohorts. Both groups were untreated at baseline, but only the early group had been reached by the 2023 survey. The later group supplies the comparison for what might have happened without earlier fibre availability.

Treatment timing comes from fibertime's activation records. For dwellings outside the initial pilot, we use the earliest recorded activation at the nearest router within 20 metres. Activation must precede the interview date; a same-day activation remains untreated because its within-day ordering is unknown. Pilot dwellings receive an assumed activation date of 31 December 2022, reflecting installation after baseline and before the second survey.

The preferred model is a doubly robust difference-in-differences estimator. It combines a model of outcomes with a model of earlier rollout, adjusting both for the gender, age group and Grade 12 completion of the respondent interviewed in each wave, alongside baseline household size, income and dwelling type. Household and dwelling characteristics remain at their 2022 values to avoid controlling for changes that fibre itself may have caused.

Weights are constructed separately within the analysis sample and survey wave, aligning age, gender and dwelling composition with population information and Grade 12 completion with its weighted baseline share. These weights reduce differences in respondent composition over time.

The causal interpretation requires the two cohorts to have followed comparable trends without fibre, after adjustment for observed characteristics. Rollout was not random: the pilot began in formal homes, and installation depended on electricity. With only one pre-rollout survey, we cannot test the parallel-trends assumption. Local economic changes, construction projects or crime could affect early and later areas differently and bias the estimate. Nonetheless, by 2025, every dwelling in the preferred sample had been reached, removing much of the selection bias often inherent in broadband studies.

We assess sensitivity to the controls, exclude the complete Enkanini inference cluster and omit each inference cluster in turn. A further comparison links

respondents at the same dwelling whose gender, ethnicity, age progression and education records are consistent with their being the same person. This proxy-matched sample contains 398 links, although it does not verify identity. Its adjustment for starting labour status helps distinguish differences in expected changes between those already working, unemployed or inactive.

The Annexure sets out weighting and inference in more detail. **The findings describe a short-run response among respondents in sampled Kayamandi dwellings.** Effects could strengthen, weaken or take different forms as residents adapt to the service.

Did fibre connectivity affect economic participation?

Descriptive statistics at baseline

Before fibre installation, the early and later rollout cohorts already differed in household resources, education and employment. Table 1 shows the distinction between household circumstances and the characteristics of the person interviewed.

The weighted share of formal dwellings was 24.3% in the early cohort and 21.1% in the later cohort. The early group also had higher household incomes: 23.0% reported no income or up to R3,000 a month, compared with 47.0% in the later group. Average household size was similar.

Table 1: Household characteristics at baseline (2022)

Characteristic	Early cohort	Later cohort
Formal dwelling (%)	24.3	21.1
Informal dwelling (%)	55.7	61.2
Backyard dwelling (%)	19.9	17.7
No income or up to R3,000 (%)	23.0	47.0
R3,001–R5,000 (%)	21.9	19.9
R5,001–R10,000 (%)	47.7	30.0
Above R10,000 (%)	7.4	3.2
Mean household size	2.9	2.9
Dwellings (unweighted)	317	292

Notes: Preferred 609-dwelling sample; 2022 calibration weights. Early dwellings were reached before the 2023 survey; later dwellings were reached between the 2023 and 2025 surveys. Income is monthly household income. Percentages are within cohort.

Source: Authors' calculations from the Kayamandi household surveys.

Employment and education followed a related pattern (Table 2). Almost two-thirds of early-cohort respondents had completed Grade 12, compared with less than half of the later cohort. Formal employment was also more common in the early group, at 34.6% against 28.0%.

The self-employed share was modest and similar in both cohorts. Unemployment also accounted for about a fifth of respondents in each (this is not the unemployment rate), while a larger share of the later cohort was outside the labour force. All these percentages use **all respondents in the relevant cohort** as their denominator.

Table 2: Respondent characteristics at baseline (%)

Characteristic	Early cohort	Later cohort
Female	46.8	48.4
Age 18–35	56.9	53.0
Completed Grade 12	65.8	44.9
Employed (all forms)	64.9	57.5
Formal employment	34.6	28.0
Informal or piece work	24.5	23.7
Self-employed	5.7	5.9
Unemployed	19.8	19.5
Not economically active	15.3	23.0
Respondents (unweighted)	317	292

Notes: Preferred 609-dwelling sample; 2022 calibration weights. All percentages use all respondents within cohort. Formal, informal and self-employment sum to total employment. Employment, unemployment and inactivity sum to 100; inactivity includes students not classified as employed or unemployed.

Source: Authors' calculations from the Kayamandi household surveys.

Formal employment combines full- and part-time formal-sector employees. Informal employment includes full- and part-time informal employees and respondents reporting paid or piece work in the previous seven days. These categories, together with self-employment, make up total employment. A respondent is unemployed if not employed and actively searching in the previous month or waiting to start an agreed job; everyone else is classified as not economically active, including students who meet neither employment nor unemployment criteria.

Different starting levels do not themselves show that trends would have differed, but they motivate our decision to control for observed characteristics. The untestable assumption concerns how the cohorts would have changed without earlier fibre availability.

How did Kayamandi change during our study period?

Kayamandi's surveys show substantial shifts in labour-market composition between 2022 and 2025, and it is difficult to disentangle changes in broader economic conditions, who answered the survey, and verified individual transitions. Table 3 follows the same 609 dwellings used in the preferred analysis. Its percentages use the survey-wave calibration weights, consistent with the baseline tables and causal estimates. Both interview modes are retained, although the person interviewed at each dwelling may change between waves. **Importantly, these movements describe respondents at tracked dwellings, not verified individual transitions or effects of fibre.**

Table 3: Labour-market composition by survey wave (%)

Status / measure	2022	2023	2025
Formal employment	31.4	40.9	31.5
Informal or piece work	24.1	40.5	12.2
Self-employed	5.8	3.9	8.8
Unemployed	19.7	7.4	10.8
Not economically active	19.1	7.3	36.7
Employed (all forms)	61.3	85.3	52.4
Labour-force participation	80.9	92.7	63.3
Respondents (unweighted)	609	609	609

Notes: Preferred 609-dwelling sample in each wave; percentages use the survey-wave calibration weights, consistent with the preferred analysis. Both interview modes are retained. All percentages use all respondents in the wave as their denominator. The first five rows are mutually exclusive; total employment sums the first three, and labour-force participation sums employment and unemployment, apart from rounding. Counts are unweighted. The same dwellings appear in each wave, but respondents may differ.

Source: Authors' calculations from the Kayamandi household surveys.

Between 2022 and 2023, the share reporting informal or piece work rose from 24.1% to 40.5%, while both unemployment and inactivity fell. By 2025, informal work had declined substantially and the inactive share had risen to 36.7%, above its baseline level. This pattern is consistent with renewed pressure on economic participation, but changes in respondents and reporting prevent it from establishing a township-wide recovery followed by withdrawal from work.

Telephone interviewing does not provide a simple explanation for the unusually low number of unemployed respondents in 2023. Narrow

unemployment was 4.8% among in-person respondents and 17.4% among telephone respondents in the proxy-matched sample (Table A3 in the Annexure). Excluding telephone interviews would make the discontinuity larger.

Household turnover is another possible contributor. Residents may move because of local conditions or crime, or because they find work elsewhere; those replacing them may have different labour-market circumstances. Conversely, improved local amenities might attract or retain people with stronger employment prospects. Following addresses cannot establish which process dominates, so it does not tell us whether turnover raises or lowers the estimated effect of fibre.

We therefore retain all interview modes. The implications for the causal estimates depend on whether the underlying changes differ between rollout cohorts, rather than merely occurring across Kayamandi as a whole.

Causal findings

Our central hypothesis is that fibre can ease information, search and coordination costs that influence whether people work, seek work or operate a business. Table 4 reports the preferred short-run estimates for all respondents in the 609-dwelling sample. It does not restrict attention to people currently working, whose employment status may itself respond to fibre.

Table 4: Estimated short-run effects on labour status

Outcome	Effect (pp)	SE (pp)	p-value	Adjusted p
Employed	8.1	4.8	0.068	0.113
Unemployed	-7.8	3.8	0.019	0.058
Formal employment	16.0	8.2	0.023	0.058
Informal or piece work	-7.8	7.7	0.298	0.372
Self-employed	0.0	3.2	0.992	0.992

Notes: Preferred 2022–2023 doubly robust repeated-cross-section DiD: 317 early and 292 later dwellings; 15 inference clusters. Outcomes use all respondents, including unemployment (not a labour-force rate). SE: clustered multiplier bootstrap. Pointwise p-values: estimator-aware studentised cluster bootstrap, 9,999 Rademacher draws. Adjusted p-values: Benjamini–Hochberg across five labour outcomes. All use wave calibration weights and the stated covariates.

Source: Authors' calculations from the Kayamandi household surveys.

An effect in percentage points is a change in an outcome's probability relative to the estimated no-fibre comparison. For example, the formal-employment estimate is a difference between adjusted cohort changes, not a percentage increase in the number of jobs or proof that particular workers moved into formal employment. The unemployment row similarly concerns the probability of being unemployed among all respondents, not the unemployment rate among labour-force participants.

The table reports both uncertainty around each estimate and p-values adjusted for examining several outcomes. A small pointwise p-value indicates evidence against a zero effect for that outcome alone. The adjusted value makes allowance for the five labour outcomes considered together.

Fibre and movement towards formal employment

The formal-employment results consistently point towards a shift in the composition of work. The preferred estimate is an increase of 16.0 percentage points, against weighted baseline formal-employment shares of 34.6% and 28.0% in the early and later cohorts. Its standard error is 8.2 points. The pointwise p-value is 0.023, rising to 0.058 after the labour-family adjustment. The adjusted value is just above the 5% threshold, so the evidence should be read alongside the size and consistency of the estimates across the sensitivity checks.

The increase is concentrated in full-time formal employment, with an estimated 16.5-point rise; the part-time estimate is close to zero (Table A1). Informal employment has a negative but imprecise estimate. Together, these findings suggest a change in work composition, although the survey does not establish better pay, job security or an individual move into more stable work.

Leave-one-out estimation shows that the positive direction does not depend on any single inference cluster. Omitting each of the 15 clusters in turn leaves the formal-employment estimate positive in every case, ranging from 12.9 to 19.0 percentage points. Excluding the complete Enkanini cluster also retains a positive estimate of 17.2 points (Table A2). These checks strengthen the evidence that the formal-employment finding is not driven by one rollout area. The direction is therefore consistent across the leave-one-out estimates, although uncertainty about the size of the effect remains.

The respondent-continuity check supports the same direction. Among the 398 proxy-matched links, the estimated increase in formal employment is 10.7 percentage points after adjustment for baseline household characteristics and labour status (Table A2), although its p-value does not meet the 5% threshold. Taken together, the preferred estimate, cluster omissions and proxy-matched comparison provide a consistent positive signal for formal employment, although its magnitude and statistical precision depend on the specification and sample.

The descriptive transitions help locate the difference. Among proxy-matched respondents initially in informal or piece work, 39.5% of the early cohort reported formal employment in 2023, compared with 21.2% of the later cohort. Retention in formal employment was also higher in the early group, while entry from unemployment or inactivity was similar (Table 5).

Table 5: Formal employment in 2023 by starting labour status (%)

Status in 2022	Early cohort	Later cohort
Formal employment	63.6	41.6
Informal or piece work	39.5	21.2
Unemployed	33.2	31.1
Not economically active	36.2	35.6

Notes: 398-person proxy-matched sample: 182 early and 216 later links. Entries are weighted shares in formal employment in 2023 within each cohort and starting state, using retained baseline weights. These are descriptive transitions conditional on imperfect demographic matches, not causal effects. Self-employment is omitted here because the small subgroup does not clarify the main comparison.

Source: Authors' calculations from the Kayamandi household surveys.

Total employment has a positive estimate of 8.1 points, but is sensitive to adjustment and imprecisely estimated. The unemployed share falls by 7.8 points. Employment and unemployment are not exact complements because some respondents are economically inactive; neither result establishes a net employment gain after allowing for the set of labour outcomes.

Lower search costs remain a plausible channel, but the online evidence does not demonstrate it. The clearest response is social-media use, which rises by 14.8 points and remains significant after adjustment across ten online activities (adjusted p-value 0.001). Maintaining contacts may expose people to opportunities, but our survey cannot distinguish job referrals from leisure or general social interaction.

Fibre and self-employment

Affordable connectivity could also lower the costs of running a small business. Communicating with customers, receiving orders and coordinating payments or deliveries may become easier, including for enterprises operated from home. These potential benefits remain relevant even if the number of self-employed respondents does not change immediately.

An earlier version of this note reported a positive self-employment effect using a broader comparison across all three survey waves. The revised analysis compares earlier- and later-connected dwellings over 2022–2023, improving comparability between the groups but no longer finding a clear short-run increase in self-employment. This is, however, not to say that it might not emerge over a longer time horizon.

Conclusion

Affordable home broadband in Kayamandi seems to have supported a shift towards formal employment. Respondents in dwellings reached earlier were more likely to report formal employment, with the increase concentrated in full-time work. The estimate remains positive across the leave-one-out checks and the proxy-matched comparison. Descriptive evidence from matched respondents also points towards greater retention in formal employment and movement from informal work. This consistency supports the direction of the finding, although statistical significance varies.

Connectivity may help residents maintain contacts, find information and compete for work. Increased social-media use is consistent with this possibility, but does not establish that job referrals or online search explain the employment result.

These findings cover the early response through 2023. Longer follow-up, with reliable links between respondents and measures of job quality and business performance, is needed to assess whether employment and enterprise gains emerge or persist as residents adapt to the service.

Affordable, reliable connectivity can widen access to economic opportunity, but realising that potential also requires skills, available jobs and conditions that allow businesses to grow. Reliable electricity matters too, including for access to home fibre. Extending connectivity alongside these complementary investments may help move more South Africans into better jobs.

Annexure

Model specification and weighting

The preferred two-period estimator compares respondents in 317 early and 292 later dwellings over 2022–2023. It is a repeated-cross-section design, with neither dwelling nor respondent fixed effects. Both the outcome and earlier-treatment models include respondent gender, age group and Grade 12 completion in each wave, together with baseline household size, income band and dwelling type.

Calibration first aligns four gender-by-age cells with population shares, then dwelling type with the shares of formal, informal and backyard homes supplied by GeoTerralImage. Grade 12 completion is aligned with its weighted baseline share within the sample. Weights are untrimmed and normalised to average one, summing to 609 per wave in the preferred sample. Conditional percentages retain those weights and use the stated subgroup as denominator; counts remain unweighted.

Table 3 uses these survey-wave weights for the preferred 609-dwelling sample. The survey-mode diagnostic in Table A3 uses unweighted counts and rates for the 398 proxy-matched links. Its counts and rates cannot be read as the denominators or weighted percentages underlying Table 3, and they are not population estimates.

Standard errors use a multiplier bootstrap clustered across 15 rollout-related groups, combining the pilot zones into one cluster. Pointwise p-values use an estimator-aware, studentised cluster bootstrap with 9,999 Rademacher draws. Benjamini–Hochberg adjustment covers the five primary labour outcomes; the social-media result uses the separate family of ten online activities. The supplementary formal-employment components are outside the five-outcome family.

Detailed results and sensitivity

Table A1 separates the full- and part-time components of formal employment. These are probabilities among all respondents in the preferred sample, rather than shares among workers.

Table A1: Formal employment and its components

Outcome	Effect (pp)	SE (pp)
Formal employment	16.0	8.2
Full-time component	16.5	9.3
Part-time component	-0.5	3.1

Notes: The preferred design, weights and clustering match Table 4. Components are supplementary outcomes, not extra members of the primary five-outcome adjustment family.

Source: Authors' calculations from the Kayamandi household surveys.

Table A2 reports the comparison without the complete Enkanini inference cluster and the proxy-matched analysis. Removing that cluster excludes 48 Enkanini dwellings, retaining the parent weights. The proxy screen allows plausible age progression and educational gains, but excludes a reported reversal of completed Grade 12. Gender and ethnicity must agree at the same dwelling. Its estimates use first differences, retained baseline weights and adjustment for starting household characteristics and labour state.

Table A2: Labour-outcome sensitivities

Outcome	Without Enkanini	Proxy matched	Proxy p
Employed	7.8 (4.7)	1.8 (5.5)	0.788
Unemployed	-7.7 (4.6)	-3.2 (3.3)	0.506
Formal employment	17.2 (8.3)	10.7 (6.0)	0.123
Informal or piece work	-8.0 (7.9)	-7.0 (8.6)	0.450
Self-employed	-1.4 (3.5)	-2.0 (1.9)	0.352

Notes: Percentage-point estimates (SE). Without Enkanini: 560 dwellings, 14 clusters, preferred adjustment and unchanged parent weights; excludes the complete 49-dwelling inference cluster. Proxy: 398 links, 15 clusters; first differences adjusted for baseline household size, income, dwelling type and labour state, using retained baseline weights. Proxy p-values use 9,999-draw wild-cluster inference and are pointwise.

Source: Authors' calculations from the Kayamandi household surveys.

Labour-market measurement and survey mode

The sample's narrow unemployment analogue includes employed people, including informal and self-employed workers, in the labour-force denominator. Respondents classified as inactive are excluded from that denominator. The study does not reproduce all Quarterly Labour Force Survey (QLFS) eligibility and availability conditions, so numerical similarity to an official rate is not validation of population representativeness.

Table A3 shows why excluding telephone interviews would not resolve the low 2023 unemployment figure. Proxy-matched respondents in the eventual telephone group had higher unemployment in both years, suggesting pre-existing selection, while both groups recorded declines. We therefore retain all interviews and do not reweight by mode without a defensible target composition.

Table A3: Survey mode and the narrow unemployment analogue

Mode / wave	N	Labour force	Unemployed	Rate (%)
Face to face 2022	220	160	39	24.4
Face to face 2023	220	207	10	4.8
Telephone 2022	178	150	45	30.0
Telephone 2023	178	161	28	17.4

Notes: 398 proxy-matched links; unweighted counts and rates. Links are grouped by their eventual 2023 interview mode in both years. Telephone contact was attempted first; realised mode was not random. The labour force is the rate denominator. All modes remain in the analysis.

Source: Authors' calculations from the Kayamandi household surveys.