

STUDY METHODOLOGY

Impact measurement methodology

Independent study by Rashid Mayende and Godfrey Kayoby, commissioned by Balloon Ventures for Livelihood Impact Fund. External review and additional analysis by Enrico Calvanese.

Six months of fieldwork, August 2025 to February 2026.

Framed around the OECD Job Quality Framework.

Random stratified sample · 93 targeted, 90 achieved · ±8% margin of error

BUSINESSES SURVEYED

90

of 228 non-defaulting BV portfolio companies (39%). Stratified by business size.

EMPLOYEES SURVEYED

326

workers interviewed directly, in-post ≥6 months, sampled across all job levels.

CONTROL COHORT

349

BV firms contracted Nov 2024–Apr 2026 — measured at their own contracting baseline, the pre-investment control.

THREE TIMEPOINTS CAPTURED FOR EVERY WORKER

1

Pre-investment

(retrospective recall)

Earnings the month before BV's first loan to the company, collected through structured retrospective interviewing with a fixed anchor date.

2

At time of contracting

(BV baseline survey)

Data BV recorded when the loan was first issued, used as an independent measurement of pre-investment wages.

3

November 2025

(current state)

Month immediately preceding the survey. 40% of employers produced payslips or payroll records; enumerators photographed these as audit trail.

TWO INDEPENDENT SOURCES

Employers interviewed separately from workers, using different instruments and enumerators. Both surveys collected the same earnings and wage-change questions — a cross-check that the two stories match.

ANALYTICAL RIGOUR

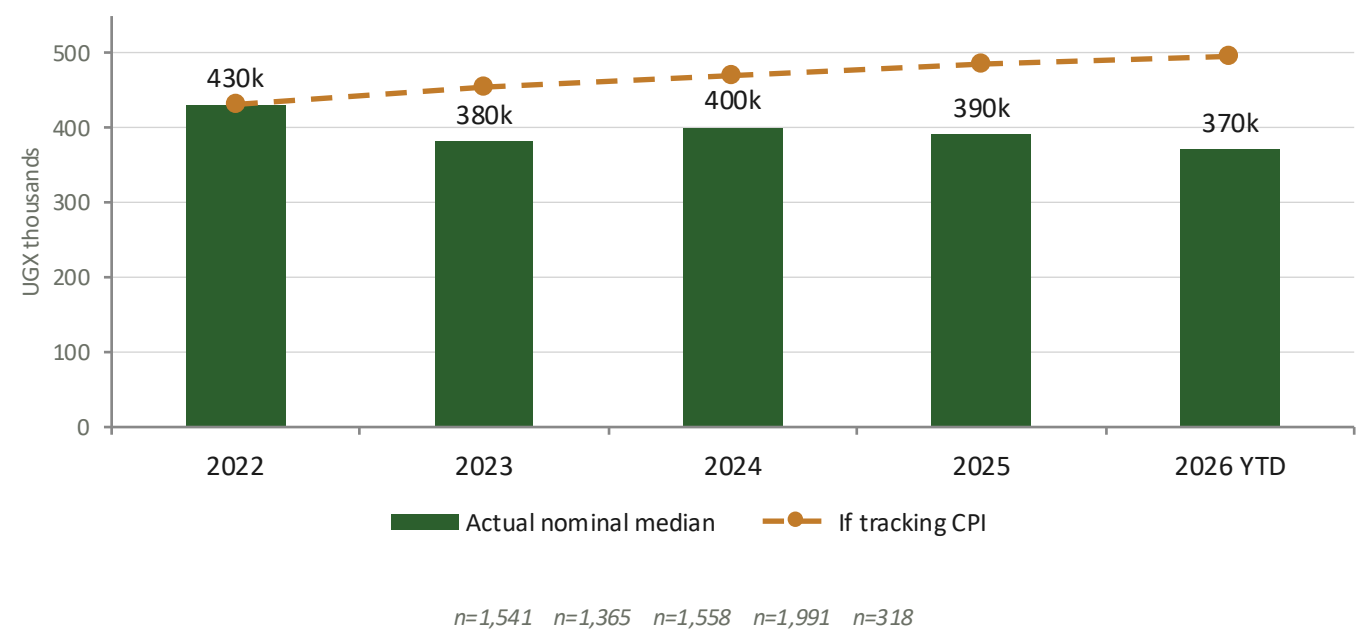
Earnings reported in nominal UGX throughout; CPI-adjusted values shown on the trajectory slide. Outliers removed via Z-score filter ($|z| > 3$). Bootstrap 95% confidence intervals reported on headline figures.

Note: where real (CPI-adjusted) values are reported, they are deflated using UBOS CPI weights of 1.366 (Nov-2025) and 1.3188 (pre-investment). A single CPI ratio is applied across all observations regardless of each firm's specific contracting date — a simplification, given that contractings span 2022–2024.

Nominal wages don't follow changes in CPI

4.5 years of BV baseline job-survey data — 616 firms, 6,928 worker records. Median contracting wages have been flat to declining while CPI rose ~20%. This is the context for reading the wage-growth numbers that follow.

BV BASELINE: MEDIAN MONTHLY WAGE, ALL SECTORS POOLED (UGX)



WHAT THIS MEANS

— 9%

nominal change 2022–2025 — against +17–18% CPI inflation over the same period.

SECTOR-LEVEL CHECK (2022 → 2025, nominal)

Education 3,508 records	–5% nominal
Wholesale/Retail 1,643 records	–23% nominal
Health 395 records	+7% nominal
Hospitality 423 records	–29% nominal

THE IMPLICATION: In Uganda’s SME sector, nominal wages are sticky. They don’t adjust to inflation — workers absorb the real-wage loss over time. This is why this report leads with nominal figures: in this segment, nominal growth is real impact. Without intervention, the typical worker’s pay does not rise. Any nominal wage growth observed at BV-supported firms is genuine impact, not background growth.

Source: BV Job Survey baseline data, captured at firm contracting between Nov 2021 and Apr 2026. n=616 firms, 6,928 worker records. Annual medians of monthly total earnings (cash + benefits), with outliers removed ($|Z| > 3$). Uganda CPI series from Bank of Uganda / UBOS.

Impact numbers

Study of 90 BV-supported SMEs in Uganda, a representative and random sample of the total portfolio

 418

new FTE jobs across 90 SMEs sampled

Total employment growth across the portfolio — a 30% increase on baseline.

 +52%

median nominal wage growth

+17%/yr | 95% CI: +44% to +56%

Median monthly cash wage grew from UGX 250k (pre-BV) to UGX 380k (Nov-2025) over ~2.6 years — about +17% per year. Uganda's SME-sector nominal wages have been flat to declining over the same period (see slide 2), making this genuine impact.

 \$570k–1.31M

extra wages per year across 90 SMEs sampled

Range reflects CPI-adjusted (lower) vs nominal (upper) approaches. Details on the later slides covering trajectory and control comparison.

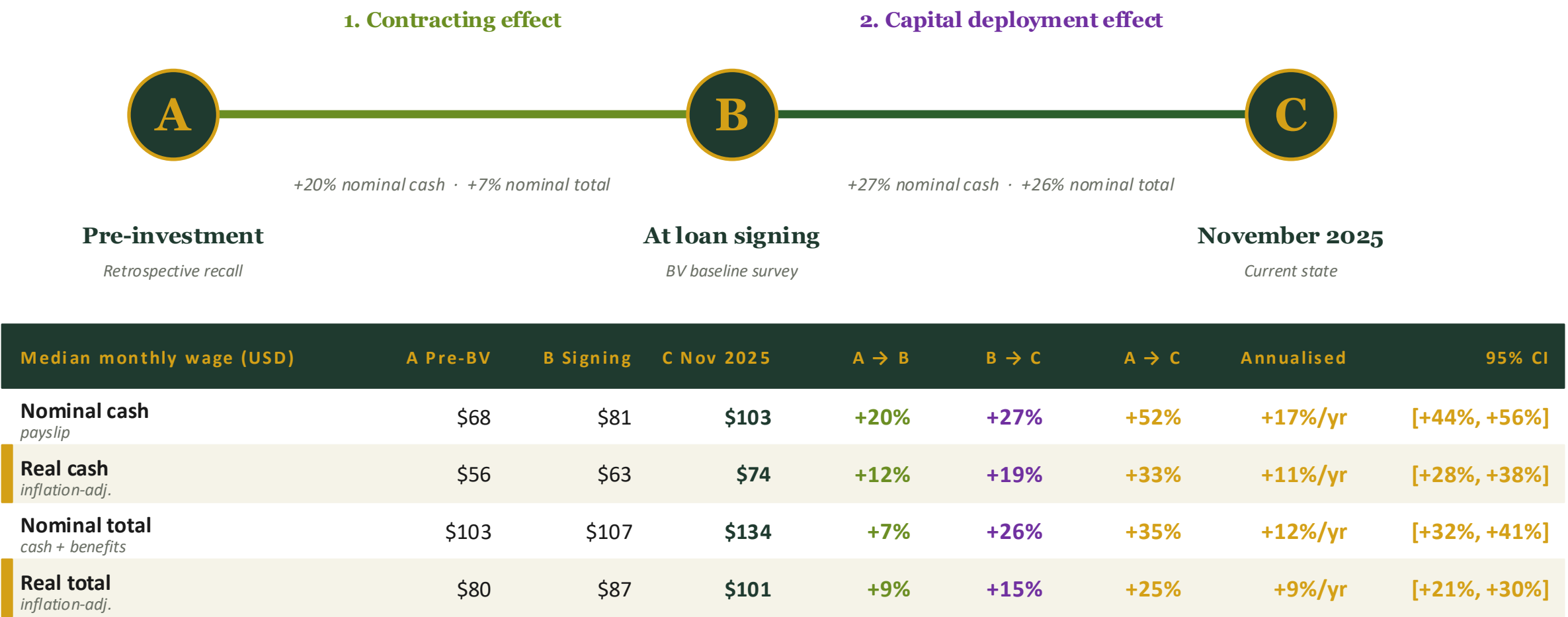
 ~7,200

people reached

Workers and their dependents in the 90 firms, assuming average household size of 4.

BV lifts wages via two mechanisms

Wages grow in two distinct stages. Contracting discipline at loan signing, then capital-driven business growth.



BV’s loan origination process requires formal contracts and triggers salary reviews before capital is deployed — that moment alone adds ~20% to nominal cash wages. Then the loan funds business growth, which sustains another ~27% of nominal cash uplift. Both are linked to BV. Annualised, this is ~17% per year on cash earnings; with Uganda’s SME-sector nominal wages flat over the same period. USD figures use UGX 3,696 = USD 1 (2023–25 average); real figures use UBOS year-specific CPI deflators.

The headline numbers hold up under stress-testing

Three independent stress-tests of the +52% headline (recall bias, sector mix), plus a fourth cross-check against the worker survey on the next slide.

STRESS-TEST 01

Documented subsample (t1 → t3)

+52.0%

Median nominal cash growth · 95% CI +34.5% to +56.0%, across the 36 firms (40%) that supplied payslips or payroll records. Full-sample headline: +52.0%.

The +52% headline is reproducible using only the firms whose payroll records were directly verified. The full-sample figure is not an artefact of less-documented data.

STRESS-TEST 02

Recall-free check (t2 → t3)

+31.0%

Median nominal cash growth · 95% CI +23.3% to +39.3%, comparing BV's recorded contracting baseline (t2, hard data) to Nov-2025 payslips (t3, hard data). Annualised: +10.8% per year.

This is the most defensible single number in the study. No recall in either leg — both endpoints are documented records, captured years apart by independent processes.

STRESS-TEST 03

Sector-standardised

+31.5%

Balanced-mix average across 6 main sectors (n≥50 each). Education +33%, Agriculture +73%, Retail +52%, Health +31%, Food processing 0%, Energy 0%.

Even when the headline is computed giving equal weight to each sector (not weighted by sample size), wages still grew materially. The +52% headline isn't carried by a single sector.

The +52% headline holds across three independent robustness checks shown here, and against the worker-side survey on a later slide. The most stringent test — the recall-free comparison between BV's own records and verified Nov-2025 payslips — still produces **+31% growth** — **well above Uganda's ambient SME-segment rate of ~0%**.

Findings are triangulated across two surveys

Employers and workers were interviewed separately, with different instruments. Both surveys point to materially higher wages at BV-supported firms, with overlapping confidence intervals. The two surveys use different baselines and samples, so point estimates differ; the agreement is in direction and the strong positive magnitude.

Metric	Employer survey	Worker survey	Gap
Sample size	1,480 worker records (full sample)	223 with valid wage data	
Pre-investment cash median (UGX)	250,000	280,000	30,000
November 2025 cash median (UGX)	380,000	375,000	5,000
Nominal cash growth (aggregate)	+52.0%	+33.9%	18.1pp
95% CI on aggregate growth	[+44%, +56%]	[+17%, +60%]	overlap
% of workers with nominal increase	82.1%	86.7%	4.6pp

Why this matters: Both surveys confirm the direction and strong positive magnitude of the wage-growth finding, and their 95% confidence intervals overlap substantially. The point estimates differ because the two surveys draw on different samples (223 workers interviewed directly vs 1,480 employer-reported records) and different baseline measures. The triangulation value is in the agreement between two independent data sources, not in an exact match of point estimates.

Note: aggregate medians (median of each timepoint independently, not per-worker change on a consistent sample). Nominal UGX, cash only (excludes in-kind benefits). Z-score outlier filter applied ($|z| > 3$). Worker-survey figures use the cleaned baseline wage variable (cash_BLA); the worker survey baseline is sensitive to variable choice.

Impact varies across sector and size of business

Schools scale up and hire. Small rural businesses raise wages. Different impact channels, both real.



SCHOOLS & MID-SIZE FIRMS

Drivers of new jobs

21 schools plus other mid-size firms account for half the portfolio's new jobs. BV capital funds classrooms, dormitories, labs; higher enrolment drives hiring.

N firms (Large + Medium)	35
Total FTE jobs added	+304
Median firm FTE added	+5 to +6
Median worker wage growth	+33 to +51%

Top 7 job creators include 5 schools. Absolute headcount is this segment's strongest story.



SMALL & MICRO RURAL SERVICES

Drivers of wage increases

55 firms: rural pharmacies, clinics, grain millers, produce traders, shops. Most seasonal/casual jobs, and strongest per-worker wage growth.

N firms (Small + Micro)	55
Total FTE jobs added	+100
New seasonal/casual heads	~80
Median worker wage growth	+67 to +83%

Ps Millers (grain): +8.4 casual FTE, scaled 8 to 25 workers.

Job creation, broken out by sector

FTE jobs added per firm. Median reflects the typical firm; mean is pulled up by outliers.

Sector	N firms	Median FTE added	Mean FTE added	Total FTE added
Wholesale / Retail trade	34	+0.9	+1.3	+45
Education	21	+7.0	+9.9	+208
Agricultural & Forestry	13	+1.0	+5.0	+65
Health	13	+1.0	+3.1	+40
Energy	2	+14.5	+14.5	+29
Hospitality	2	+3.5	+3.5	+7
Food processing	1	+5.0	+5.0	+5
Financial services	1	+2.0	+2.0	+2
ICT services	1	+1.4	+1.4	+1
Transport / Logistics	1	0.0	0.0	0
Portfolio total (90 firms)	90	+1.9	+4.6	+418

Where to look: Education accounts for 208 of 418 new FTE (50%). Wholesale/retail has the most firms (34) but adds only ~1 FTE each. Health and agriculture have similar median patterns — a few big gainers pull the mean above the median.

Source: BV Portfolio Survey, April 2026, employer data (n=90 firms). FTE = Full Time Equivalent: casual and seasonal workers are converted to FTE from reported days worked per month (1 FTE = 26 working days). Full methodology is in the appendix and in the dataset’s intermediate variables.

Wage growth, broken out by sector

Median nominal cash wage at each timepoint, by sector. Aggregate medians (consistent with the +52% headline).

Sector	N (Nov-25)	Median t1 (UGX)	Median t3 (UGX)	Growth	UGX change
Education	814	288,000	383,000	+33%	+95,000
Wholesale / Retail trade	223	250,000	380,000	+52%	+130,000
Agricultural & Forestry	260	208,000	360,000	+73%	+152,000
Health	124	250,000	328,000	+31%	+78,000
Energy	77	300,000	300,000	+0%	+0
Transport / Logistics	27	1,200,000	1,500,000	+25%	+300,000
ICT services	5	160,000	500,000	+212%	+340,000
Portfolio total (workers with both values)	1,622	250,000	380,000	+52%	+130,000

Where sector impact is strongest:

Agriculture (+73%) and Wholesale/Retail (+52%) show the largest sector-level wage growth. Education has the largest sample and shows +33% growth — schools hire more workers and raise wages substantially. Transport/Logistics and ICT have small samples and should be read with caution.

This impact is attributable to BV

Both employers and workers were asked what drove salary growth. Their answers point to BV's capital and covenants.

WHAT EMPLOYERS AND WORKERS SAY DROVE WAGE GROWTH

Multi-select question — respondents could cite multiple drivers. Percentages reflect how often each factor was mentioned, not statistical attribution.

Driver	Employers (n=90)	Workers (n=326)
☐ Job performance & hard work	52%	76%
☒ Business growth	50%	45%
☒ Contract issuance moments	24%	30%
☐ Coping with inflation	14%	6%
☐ Employee competence & experience	13%	10%
☐ Shielding from competition	9%	2%
☒ Production efficiency (equipment)	8%	—

☒ Direct BV attribution

☐ Indirect / enabled by BV conditions

“Revenue rose; the workload increased and staff asked for a pay rise — which we did.”

— Owner, produce trading company

“Casual workers engaged went from 8 before BV to 25 now — 16 regular and 9 during peak months.”

— Owner, grain processing company

“BV support enabled us to renovate, recruit a dentist, and offer services patients previously travelled to Mbale for.”

— Owner, health facility, Bukedi

Causal BV impact is estimated at 27.7% wage growth when leveraging a within-portfolio control comparison

Firms that received BV support 1–3 years ago vs firms just entering the portfolio. Same screening, same survey instrument, same measurement window — the wage difference is

TREATED

BV-supported firms (n=81) — contracted 2022–24, measured Nov 2025.

vs

CONTROL

PSM-matched new contractings — baseline, pre-investment.

MEDIAN MONTHLY WAGE BY SECTOR (UGX, NOMINAL)

Sector	Treatment (Nov-25)	Control (baseline)	Gap	Share of T
Retail / Trade	540,000	350,000	+54.3%	55.6%
Education	530,000	405,000	+30.9%	24.7%
Healthcare	510,000	390,000	+30.8%	13.6%

All values in UGX, nominal. Both sides are measured in the same recent window (Nov-2024 to Apr-2026), so inflation affects both groups equally — no CPI adjustment needed. Other sectors (Energy, Manufacturing, Transport) are excluded given small matched samples (<5 firms each).

NET INTERVENTION EFFECT (ESTIMATE)

+27.7%

Wage premium at BV firms (Nov-2025) vs PSM-matched controls (baseline). = +30.8% raw gap – 3.1% pre-existing baseline difference (n.s.). Mann–Whitney p < 0.0001; n=1,489 treated and 1,248 matched control workers. The direction, balance, and significance are robust; the precise magnitude is indicative and depends on matching specification (detailed in the methodology note).

HOW THIS WORKS AS A CONTROL

BV applies the same screening criteria to every loan applicant, so treated and control firms are drawn from the same underlying population — same business sizes, sectors, regions, and selection process. The only systematic difference is how long they have been receiving BV support: treated firms (1–3 years) show higher wages; controls (zero days of support) show lower wages.

To ensure the comparison is fair, the control group is built by propensity-score matching: each eligible treated firm is paired with a newly-contracted firm of similar sector, firm size, and baseline wage level. 8 of the 90 study firms have no baseline job-survey records (they had contracted all employees or had no full-time staff at signing) and are excluded from the matching exercise. 81 of the remaining 82 firms match within caliper. All matching variables are well-balanced after pairing (standardised mean differences all below 0.25).

Because both groups are measured in the same calendar window, inflation affects both equally — the comparison is nominal-to-nominal. Note this comparison captures only the post-contracting effect: control firms are observed at their own contracting baseline, so the pre-investment-to-contracting leg (the +20% contracting effect) cannot be reconstructed for them. This is why the matched estimate (~+28%) is smaller than the full +52% pre/post figure: like the recall-free check (+31%), it reflects only the post-contracting window rather than the full pre/post journey.

Source: analysis of BV’s all_jobs_surveys baseline (n=399 firms with valid wage data after outlier filter) and salaries follow-up survey. Propensity-score matching on sector + log(firm size) + log(baseline wage). 8 firms excluded for lack of baseline data; 1 further firm excluded for no caliper match (TUMOM Petroleum Services). Methodology details in companion methodology note.

BV’s projected impact is up to \$1.3M/year for each cohort of 90 SMEs

BV is currently funding around 300 new SMEs per year and scaling at 1.5x per annum with ~3% write off rate

Two projection scenarios. The CPI-adjusted figure assumes wages would have tracked inflation absent BV. Control data (preceding slides) shows that in Uganda’s SME segment they don’t, so the true nominal uplift is likely larger.

STANDARD METHOD · CPI-adjusted

Assumes wages would have tracked inflation absent BV

\$570k / year

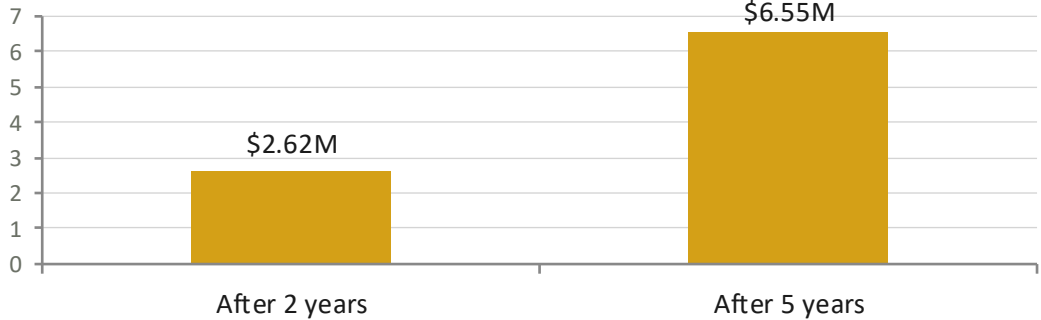
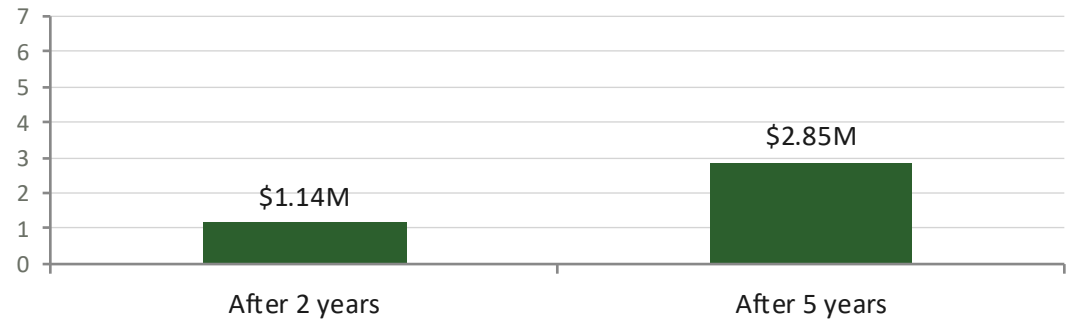
real additional wages flowing to 90 new firms

CONTROL-EMPIRICAL · nominal

Control data shows wages don't track inflation in this segment

\$1.31M / year

nominal wage uplift flowing to 90 new firms



WHERE THE \$1.31M COMES FROM

\$620k · new jobs (418 FTE)

\$690k · raises (1,384 existing workers)

~7,200 people

reached including worker dependents (avg Uganda HH size ~4)

CAPITAL EFFICIENCY: ~\$4M of loan capital deployed; largely recycles as loans are repaid, supporting successive cohorts over a decade.

Both projections assume future BV cohorts perform similarly to the cohort studied — which depends on consistent screening criteria, similar macroeconomic conditions, and stable programme delivery. Projections should be read as illustrative magnitudes, not precise forecasts. USD figures use UGX 3,696 = USD 1 (2023–25 average). Scaling assumptions (~300 new SMEs/year, 1.5x growth, ~3% write-off) are BV planning inputs, not study findings.