



**Pharmacoeconomics &
Outcomes research**



UNIVERSITY OF
EASTERN FINLAND

Health-related productivity norms in Finland

Population benchmarks for paid & unpaid work productivity and PALE

Piia Lavikainen, PhD, Adjunct Professor

School of Pharmacy, University of Eastern Finland, Kuopio, Finland



Finland's normative study surveyed 3,644 adults using the validated WPAI instrument

1. Representative survey

N = 3,644 Finnish adults

- Aged 18–79 years (digital survey, 2024)
- Quota sampled by age, sex, & region
- Post-stratification weighted to national population (N = 4.15M)
- 57.5% employed | 42.5% non-employed

2. WPAI-GH instrument

Paid & Unpaid Work Measured

- Paid work: Absenteeism + Presenteeism
- Unpaid Work: 0–10 Activity Impairment in regular daily tasks
- 7-day recall window

3. PALE integration

Linking productivity to survival

- Combined 10-year age-sex weighted PIs
- Statistics Finland 2024 Life Tables
- Closed at age 100
- Assumed PI = 0 for ages <20 and ≥80 (males) / ≥85 (females)



Presenteeism is the dominant driver of paid work loss in Finland at 13.9%

PRESENTEEISM IMPACT

3.2x

greater than absenteeism

Breakdown of paid work metrics (employed population)

Metric	Total	Male	Female
Absenteeism (%)	4.4%	4.2%	4.6%
Presenteeism (%)	13.9%	13.4%	14.3%
Paid work PI	0.831	0.836	0.824



Unpaid work impairment is twice as high among non-employed Finns

Employed population



Activity impairment due to health problems:

16.4%

(Male 14.5% | Female 18.2%)

Unpaid work PI: **0.836** (Male 0.855 | Female 0.818)

Non-employed population



Activity impairment due to health problems:

31.3%

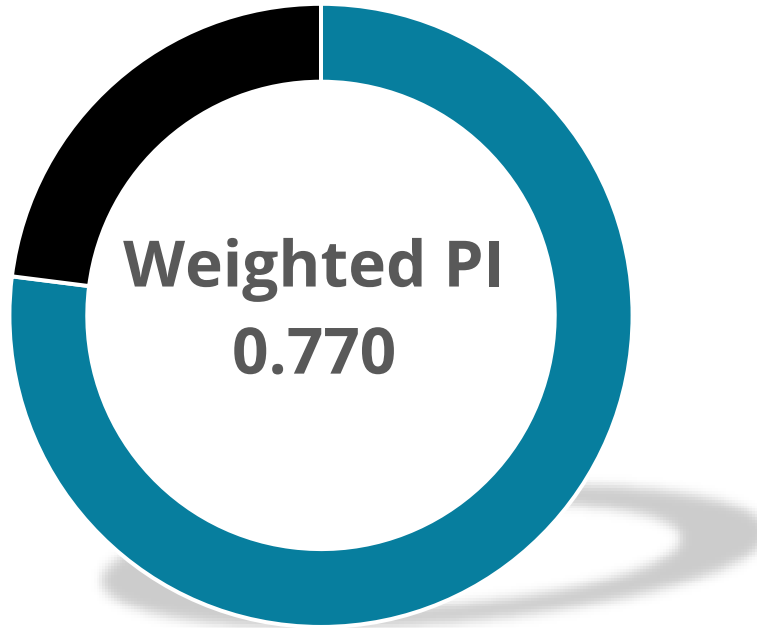
(Male 14.5% | Female 18.2%)

Unpaid work PI: **0.688** (Male 0.696 | Female 0.679)



Overall weighted productivity index

Combines equal
50/50 weights for
paid and unpaid
work in the
employed
population



Male 0.780 | Female 0.760



At age 20, Finns face an 17.8-year lifetime productivity loss gap

Male PALE at age 20

42.9 years (LE: 59.8 y)

Lifetime productivity loss gap: 16.9 years

Female PALE at age 20

46.1 years (LE: 64.9 y)

Lifetime productivity loss gap: 18.8 years

Age cohort	Weighted PI	Male PALE / LE	Female PALE / LE
Age 20 cohort	0.770	42.9 / 59.8 years	46.1 / 64.9 years
Age 50 cohort	0.742	18.8 / 31.0 years	21.0 / 35.5 years
Age 70 cohort	0.687	5.1 / 14.3 years	6.2 / 17.5 years

LE, life expectancy; PALE, productivity-adjusted life expectancy; PI, productivity index



Finland exhibits lower overall productivity norms and PALE than Australia

Metric / Benchmark	Finland	Australia	Divergence & Insight
Overall weighted PI	0.770 (M 0.780 F 0.760)	0.831 (M 0.847 F 0.815)	Finland is 0.061 points lower overall
Paid work absenteeism	4.4% (M 4.2% F 4.6%)	1.7% (M 1.5% F 1.9%)	Finland is 2.6× higher (OECD leave norms)
Paid work presenteeism	13.9% (M 13.4% F 14.3%)	15.2% (M 13.9% F 16.8%)	Comparable (~14–15% impairment)
PALE at age 20 (total)	44.6 years	48.0 years	Finland is 3.4 PALE years lower
Female PALE (age 20)	46.1 years (LE 64.9)	49.0 years (LE 65.1)	2.9 PALE years lower in Finland



Survey instruments and recall periods explain major cross-national divergences

1. Recall Windows

7-day vs. 12-month recall

- Finland used WPAI-GH (7-day recall) extrapolated to 1 year
- Australia used 12-month for absenteeism and 4-week for presenteeism
- Shorter recall windows capture acute fluctuations but can inflate annualized absence rates

2. Unpaid work measurement

Direct rating vs. proxy model

- Finland measured unpaid work directly across employed and non-employed
- Australia derived unpaid productivity proxy models from paid work loss due to data constraints

3. Sick leave culture

Nordic vs. Australian norms

- Finns traditionally report higher statutory sickness absences than OECD averages
- Nordic statutory leave and social security encourage formal absence recording



Population norms enable disease burden evaluation and guide equitable resource allocation

1. Societal burden evaluation

- Evaluates societal impact of chronic disease
- Stratified across age groups & sexes

2. Transparent life-year outcome

- Combines paid & unpaid work capacity
- Transforms productivity into PALE metric

3. Equitable resource allocation

- Standardized benchmark for public health
- Prevents gender & age resource biases

4. International comparability

- Harmonize survey recall windows
- Standardize unpaid work instruments



References

- Baek Y, Lloyd M, Rodda S, Martikainen J, Skouteris H, Ademi Z. Australian population norms for paid work productivity and exploratory estimates for unpaid work productivity. Social Science & Medicine. 2026;118847.
<https://doi.org/10.1016/j.socscimed.2025.118847>
- Lavikainen P, Heiskanen J, Ademi Z, Baek Y, Mäki-Opas T, Martikainen J. Normative values for paid and unpaid work productivity for estimating productivity-adjusted life expectancy in Finland. Social Science & Medicine. 2026;407:119723.
<https://doi.org/10.1016/j.socscimed.2026.119723>



UNIVERSITY OF
EASTERN FINLAND

Thank you!

piia.lavikainen@uef.fi

uef.fi

