Rieda edishan | 2026-11-20

Risk index. Di job-loss model

Adrian Dunkley | 2026-11-10

Di model use occupation score an assumption bout AI use, task replacement, transfer an new post. Di answer measure how much full-time work could come under pressure. Yuh cyaan use it fi count who lose dem job.

Adrian Dunkley. 10 November 2026. Research edition 0.1. Print edition a di public web text prepare 20 November 2026.

1. Exposure, employment pressure an job loss

Exposure score describe di technical potential fi AI affect task. Employment pressure a calculated drop in required work under stated assumption. Job loss a observed loss a one job or post over a defined period. JLM link exposure to employment pressure. It nuh measure job loss. ILO also distinguish exposure from employment forecast. [ilo-explorer]

Di model use full-time equivalent, or FTE. One FTE a di amount a work assigned to one full-time post. It measure work capacity, so yuh can have a fraction a a FTE. It nuh count identified people.

Di calculator show how each assumption affect di result. Employer, worker an public agency can use it fi identify evidence fi a local study. Validated local measurement can replace assumed value.

2. Weh di occupation data show

Di supplementary workbook fi di 2025 ILO exposure study have 3,265 task row linked to 427 four-digit occupation group inna ISCO-08, di International Standard Classification of Occupations. [ilo25] [ilo-data]

Di workbook repeat occupation mean an standard deviation across task row. CAIA check seh dem repeated value consistent an keep one record per occupation code. A occupation wid more listed task nuh get extra weight.

Wid equal weight fi each group, di median exposure a 0.27 an di mean a 0.2965. Thirteen group inna di source highest exposure category. Data Entry Clerks score 0.70. Typists an Word Processing Operators score 0.65. Dem a exposure score. Dem nuh tell di percentage a Caribbean worker weh wi lose a job.

Di source classify 231 group as Not Exposed an 84 as Minimal Exposure. Another 112 fall across Gradient 1–4. Dat a 26.2% a di 427 group when each count once. Dat percentage nuh describe worker share. Dis release nuh have national employment count fi dem group.

Di assessment retain di source category an standard deviation a task score inside each occupation. Standard deviation describe di spread a di score dem. It nuh gi a probability a job loss.

3. Term an calculation

Calculate employment pressure fi each occupation group o. Di term dem mean dis.

N_o. Initial workforce inna FTE.

e_o. Exposure score used as a stand-in fi di affected share a work capacity.

a_o. Adoption. Share a exposed capacity weh AI used pon during di period.

s_o. Substitution. Share a adopted exposed capacity weh replace labour.

r_o. Redeployment. Share a gross pressure absorbed through work inna other role.

G. New FTE position during di same period.

Gross pressure $D = \Sigma N_o e_o a_o s_o$. After redeployment $U = \Sigma N_o e_o a_o s_o (1 - r_o)$. Net pressure $L = U - G$. Σ mean add across di occupation group dem.

If L negative, yuh have net expansion under di assumption. Di model keep negative result. Percentage index a $100 \times L / \Sigma N_o$. Total initial workforce haffi above zero.

Exposure score nuh measure di share a hour weh AI can automate. Using it as a work-capacity fraction add a assumption weh local task-time study haffi test. Di calculator keep e, a, s an r between 0 an 1. Enter new post as percentage a di same initial workforce.

Di default example cover three year an use 10,000 FTE, exposure 0.29, adoption 50%, substitution 30%, redeployment 50% an new post equal to 1%. Di exposure assumption different from di source median a 0.27.

Dat gi 435 FTE gross pressure. Redeployment absorb 217.5 FTE an di example assume 100 new FTE. Net pressure a 117.5 FTE or 1.175% a di initial workforce. Dem number a calculation, no observed layoff.

4. How fi read di chart dem

Di animated line change adoption from 0 to 100%, holding di rest fixed. It test sensitivity to adoption. It nuh predict annual change.

Di 3D chart change adoption an substitution. Di height show net FTE pressure at di chosen exposure, redeployment an new-post value. Orange show positive pressure, blue show net expansion. Rotate fi change di view. Di calculation stay di same.

At zero adoption, gross AI pressure a zero. New post assumed separate can still gi net expansion. Wid 100% redeployment, pressure after redeployment a zero. If no new post assumed, net pressure cyaan negative. Calculation test check dem limit.

G a separate input. Di model nuh require new post fi rise wid adoption. Dat assumption matter when yuh change adoption rate.

Fi one group, sensitivity to adoption a $N \times e \times s \times (1 - r)$. More worker or more substitution increase sensitivity. More redeployment reduce it. Di equation show dat directly.

Di model nuh assign probability to input value. A chart surface or slider range cyaan serve as a confidence interval. JRC guidance support explicit examination a dem design choice. [jrc]

5. Evidence an limit

Di World Bank an ILO study identify potential fi AI assistance an automation inna Latin America an di Caribbean. Digital access affect who can use di help. Some labour microdata inna di reproduction package restricted. JLM nuh reproduce national employment estimate or invent data fi replace missing record. [wb-lac] [wb-repro]

Task-based economic theory separate displacement, productivity gain an new task. JLM use dat distinction but it equation nuh fit di whole economy. It leave out price, trade response, migration, fiscal transfer, job-search delay an feedback between demand an adoption. [automation]

Workplace study nuh gi one universal conversion from time saved to layoff. Brynjolfsson, Li an Raymond report higher productivity fi di support agent dem study. Becker an colleague report slower completion inna fi dem early-2025 developer trial. Dat support task-specific measurement, no single effect fi all Caribbean sector. [work] [metr]

6. Evidence fi a workforce estimate

Before deployment, employer study need task list, paid hour, output quality, vacancy, new hire, departure an internal transfer. A phased introduction can support comparison. Check selection into adoption an whether comparison group have similar trend before.

Measure change inna task time an weh happen to released capacity. Redeployment need a defined paid role an evidence a actual work inna dat role. Training attendance cyaan establish successful redeployment.

A national estimate need employment count by occupation an industry, consistent FTE conversion, survey weight an adoption measure fi di same period. Name missing occupation. Income an participation gi context but cyaan replace employment count or establish cause. [participation] [income] [api]

Before analysis fix di outcome, period, sampling frame an comparison method. Later period or separate organisation haffi provide validation data. Any future probabilistic model haffi report forecast error, probability calibration an worker-group coverage.

Di composite indicator handbook can guide reporting. Governance an worker participation need a suitable local process. [composite] [ram] [ethics]

JLM currently help user examine assumption an plan data collection. Di Jamaica economic study a separate scenario analysis. Reconcile population, period an mechanism before combining output. Nuh add loss from both model widout dat check.

Source an reading note. Check done 10 November 2026

[ilo25] Abstract, method overview an supplementary occupation file. DOI 10.54394/HETP0387.

[ilo-data] Download Final_Scores_ISCO08_Gmyrek_et_al_2025.xlsx, Sheet1, 3,265 row. Extract numeric field. Publisher keep original workbook.

[ilo-explorer] Interpretation an data coverage, update 7 October 2026.

[wb-lac] Overview an key message from publication summary. Regional range cyaan serve as national forecast.

[wb-repro] Data restriction, source dataset an reproduction requirement. Study DOI 10.1596/1813-9450-10863.

[automation] Task framework an displacement/reinstatement mechanism, pp. 3–10. DOI 10.1257/jep.33.2.3.

[work] Abstract an introduction. Staggered deployment, 5,172 support agent, 15% average productivity lift inna dat setting.

[metr] Historical randomised trial, 16 developer an 246 task. Nuh generalise to current tool or all developer.

[jrc] Step 1–10. Construct, missingness, weighting, aggregation, sensitivity an external comparison.

[composite] Publication record an method scope, used wid JRC implementation guide.

[participation] Modelled ILO estimate. Participation include employed people an people looking fi work. It nuh measure equal pay.

[income] Only fi income-dependence diagnostic, outside di foundation score.

[api] Version 2 API. Analysis retain query URL, response date an hash.

[ram] Overview a RAM an how it work, check 10 November 2026.

[ethics] Value, oversight an ethical impact assessment, especially paragraph 49–53. Normative guidance, no regional statute.

Suos dem

[ilo25] Gmyrek, P., Berg, J., Kamiński, K., et al. (2025). Generative AI and Jobs: A Refined Global Index of Occupational Exposure. ILO Working Paper 140.

[ilo-data] Gmyrek, P., et al. (2025). Supplementary ISCO-08 scores.

[ilo-explorer] Gmyrek, P. (2026). AI Exposure Explorer.

[wb-lac] World Bank and ILO (2024). Generative AI and Jobs in Latin America and the Caribbean: Is the Digital Divide a Buffer or Bottleneck?

[wb-repro] Gmyrek, P., Winkler, H., and Garganta, S. (2024). Buffer or Bottleneck? Reproducibility package.

[automation] Acemoglu, D., and Restrepo, P. (2019). Automation and New Tasks: How Technology Displaces and Reinstates Labor. Journal of Economic Perspectives, 33(2), 3–30.

[work] Brynjolfsson, E., Li, D., and Raymond, L. (2025). Generative AI at Work. Quarterly Journal of Economics, 140(2), 889–942.

[metr] Becker, J., Rush, N., Barnes, B., and Rein, D. (2025). Measuring the Impact of Early-2025 AI on Experienced Open-Source Developer Productivity.

[jrc] European Commission, Joint Research Centre (2025). Composite Indicators: 10 Step Guide.

[composite] OECD, European Union and EC-JRC (2008). Handbook on Constructing Composite Indicators.

[participation] World Bank WDI / ILO. Ratio of female to male labour force participation (%), SL.TLF.CACT.FM.ZS.

[income] World Bank WDI. GDP per capita, PPP, constant 2021 international dollars, NY.GDP.PCAP.PP.KD.

[api] World Bank. Indicators API documentation.

[ram] UNESCO. AI Readiness Assessment Methodology.

[ethics] UNESCO (2021). Recommendation on the Ethics of Artificial Intelligence.

Inglish edishan (PDF)