Robot Adoption and Labor Market Dynamics: Matlab Codebook

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Table 1: Model environment (`env` structure)

Substructure	Variable	Description
	nYears	Number of simulation years
	nSectors	Number of sectors of the economy
	nOcc	Number of occupations
wrk	nSkills	Number of skill groups
wrk	nAge	Working life span
wrk	nTen	Max value for tenure

Table 2: Initial values and data (`init` structure)

Substructure	Variable	Description
	wages	Used for initialization of GE solver (wages0)
frm	density	Used for initialization of GE solver (frm.density0)
wrk	density	Used for initialization of GE solver (wrk.density0)
wrk	distEnter	Skill distribution of entering cohort
wrk	mass	Mass of workers

Table 3: Counterfactual Experiments (`exper` structure)

Substructure	Variable	Description
	nCost	Number of counterfactual experiments
	title	Title of experiment
	cRobot	Adoption cost schedules for different counterfactuals
	surprise	Indicator for whether counterfactual is based on a surprise
	tSurprise	Time of shock

Table 4: Solver Parameters (`sol` structure)

Substructure	Variable	Description
tol.ge	densityFrm	Tolerance level for firm densities in GE solver
tol.ge	supplyLabor	Tolerance level for worker densities in GE
iter	ge	Maximum iterations in GE shooting algorithm
iter	frm	Maximum iterations in firm DP
lambda	wages	Gauss-Seidel weight used for wages in `solver.m`
lambda	frm	Gauss-Seidel used for firm densities in `solver.m`
lambda	wrk	Gauss-Seidel used for worker densities in `solver.m`

Table 5: Model Parameters (`par` structure)

Substructure	Variable	Description
		Firms (Manufacturing)
frm	sigma	Task substitution elasticity (σ)
frm	zPoints	Grid points of discretized firm productivity space
frm	zMu	Mean of productivity process (normalized by par.costAdj)
frm	zSigma	SD of productivity process
frm	zRho	Persistence of productivity process
frm	zGrid	Productivity grid. Defined internally with Tauchen procedure (based on frm.zMu, frm.zRho, par.frm.zSigma, par.frm.zPoints)
frm	theta	Robot depreciation rate
frm	nu	Adoption cost shock dispersion
frm	phiOcc	Factor-augmenting productivities
frm	gammaProd	Robot hicks-neutral. This is time-varying to ensure constant adoption treatment effects (despite non-stationary wages and thus cost savings for robot adoption)
frm	epsilon	Elasticity of demand
frm	gammaOcc	Factor-axugmenting robot technology
		Workers
wrk	swCost	Occupational switching costs
wrk	swAge	Switching cost in age
wrk	amenity	Amenities in occupation-sectors
wrk	hcap	Human capital function
wrk	rho	Dispersion of occupational preference shocks (ρ)
		General Production
	alpha	Factor bill shares in sectors (cobb-douglas share in services, α_{St})
	costAdj	Normalization factor for sector price indices. This is the z_t trends that generate growth in wages
	markup	Markup in sector. Based on par.frm.epsilon
		Common Parameters
	beta	Discount Factor (β)
	mu	Manufacturing share in final consumption (μ)