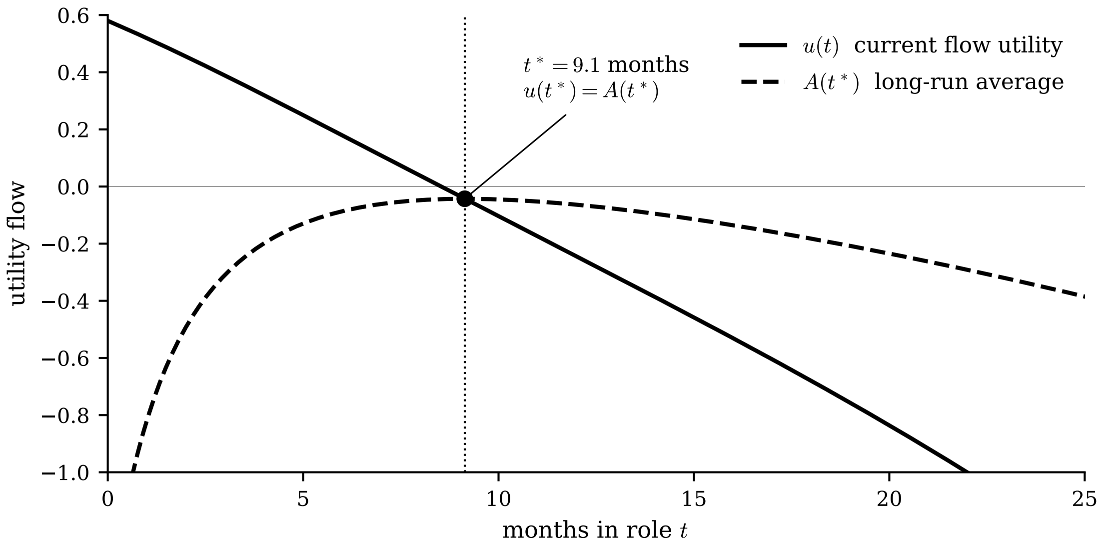
Burnout Is Not Too Much Work, v4

How to mathematical ragequit your job 2026

Theoretical model. Calibration illustrative. Action item, not advice.

v1 said burnout is a ratio. v2 said the ratio drifts and the accounting is observer-dependent. v3 said the denominator decays even at constant work. All three were diagnosis. v4 is the action item: given everything we now know, when exactly should you quit?

The answer has a name. Charnov 1976 wrote it down for birds foraging in a patch. The Marginal Value Theorem says a forager should leave the current patch when its current intake rate equals the long-run average rate over the cycle of search-plus-forage. The same equation governs jobs. A bird with no mortgage solves this in seconds. Humans take years.



Setup. At time t in a role, person i earns wage w and pays burnout cost $c(\rho_i(t))$ where $\rho_i(t)$ is the v2+v3 combined ratio. Quitting costs c_s once and forgoes wage for search time s. After quitting, m_i resets to 1 and ρ_i returns to baseline. A single cycle is one role plus one search. The question is the optimal cycle length.

Definition 1 (Net Flow Utility). *For person i in role at time $t \geq 0$,*

$$u_i(t) \;=\; w \;-\; c(\rho_i(t)),$$

where $w > 0$ is wage flow and $c : \mathbb{R}_+ \to \mathbb{R}_+$ is a continuous, weakly increasing burnout cost. Under the v2+v3 dynamics with strictly increasing $\rho_i(t)$, u_i is strictly decreasing in t.

Definition 2 (Long-Run Average Reward). *For a quit time $t^* > 0$ and search time $s > 0$, the long-run average reward over one role-plus-search cycle is*

$$A_i(t^*) \;=\; \frac{1}{t^* + s}\left[\int_0^{t^*} u_i(\tau)\,d\tau \;-\; c_s\right],$$

where $c_s > 0$ is the switch cost and we assume zero income during search.

Theorem 1 (Marginal Value Theorem for Job Stopping). *Assume u_i is strictly decreasing and continuous on $[0, \infty)$ with $u_i(0) > 0$ and $\lim_{t\to\infty} u_i(t) < 0$. Assume $c_s > 0$ and $s > 0$. Then A_i has a unique interior maximum at $t^* > 0$ characterized by*

$$\boxed{u_i(t^*) \;=\; A_i(t^*).}$$

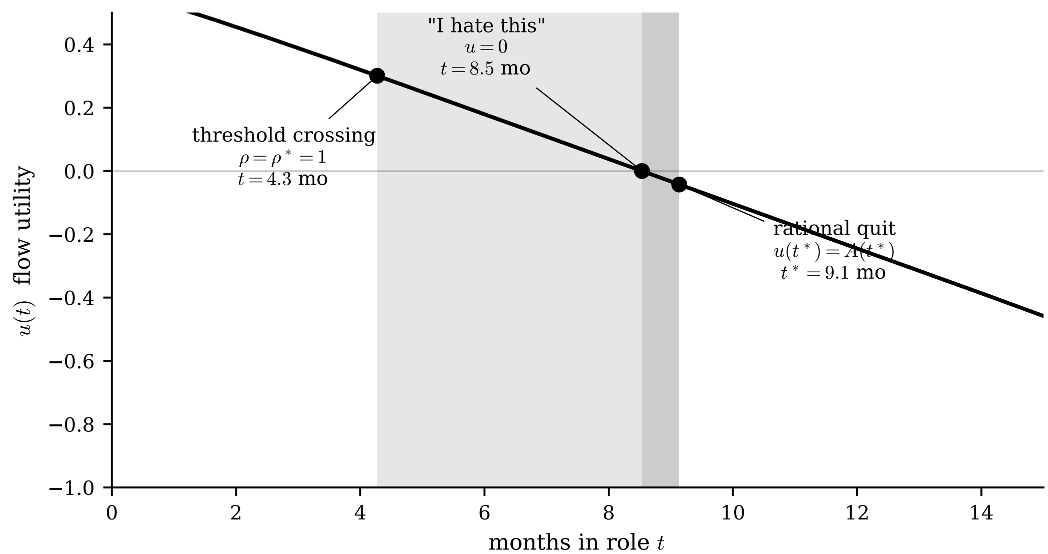
Proof. A_i is differentiable on $(0, \infty)$ with

$$A_i'(t^*) = \frac{u_i(t^*)(t^* + s) - \left[\int_0^{t^*} u_i\,d\tau - c_s\right]}{(t^* + s)^2} = \frac{u_i(t^*) - A_i(t^*)}{t^* + s}.$$

The sign of $A_i'(t^*)$ matches the sign of $u_i(t^*) - A_i(t^*)$. As $t^* \to 0^+$, $A_i \to -c_s/s < 0 < u_i(0)$, so $A_i'(0^+) > 0$. As $t^* \to \infty$, $\int_0^{t^*} u_i\,d\tau \to -\infty$ (because u_i is eventually negative and decreasing without bound or to a negative asymptote), so $A_i \to u_i(\infty) < 0$ from above, and u_i continues decreasing past A_i, so eventually $u_i < A_i$ and $A_i' < 0$. By continuity, $A_i' = 0$ at some t^*, where $u_i(t^*) = A_i(t^*)$. Uniqueness follows because u_i is strictly decreasing while A_i is single-peaked: once A_i has crossed below u_i from above, it cannot cross back, since further t^* only adds increasingly negative u_i values to the running average. □

The proof gives the geometry: A_i rises while it sits below u_i, peaks where they cross, then falls. The peak is the only crossing.

The structurally important fact is that the rational quit time t^* is **later** than the threshold crossing $\rho_i(t) = \rho_i^*$, and **later** than the moment net utility hits zero. There are three distinct milestones, and they sit in this order.



Milestone	Condition	In our calibration
Threshold crossing	$\rho_i(t) = \rho_i^*$	$t = 4.3$ months
Subjective hate	$u_i(t) = 0$ (no net benefit)	$t = 8.5$ months
Rational quit	$u_i(t) = A_i(t)$ (MVT)	$t^* = 9.1$ months

The gap between threshold crossing and rational quit (about 5 months in our calibration) is not a bug. It is the period during which amortizing the switch cost still pays off. The subjective sensation is "something is wrong but I cannot afford to leave yet," and that sensation is exactly correct.

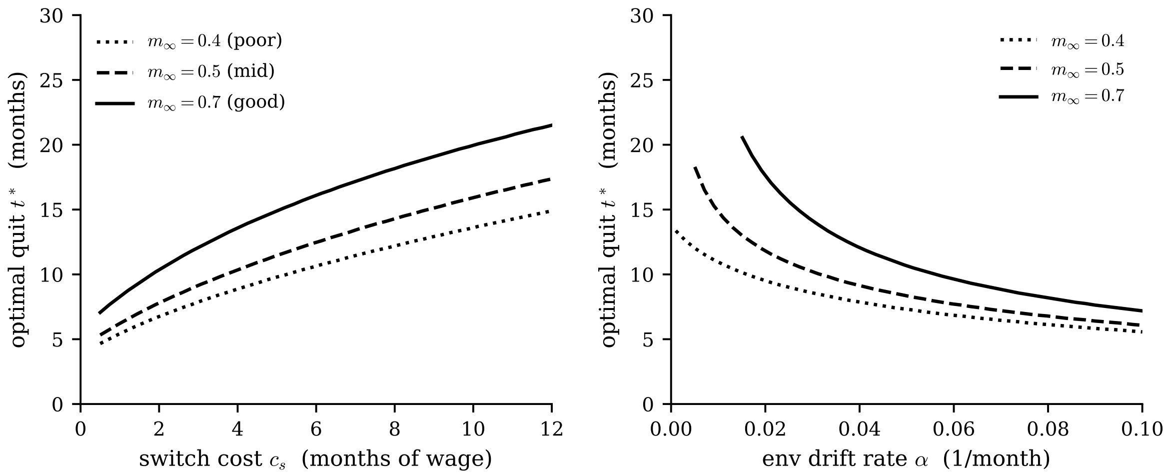
Worked example. With $w = 1$, $\rho_0 = 0.6$, $m_\infty = 0.5$, $\tau_m = 5$ months, environmental drift $\alpha = 0.04$ per month, stress sensitivity $\lambda = 0.7$, switch cost $c_s = 3$ months of wage, and search time $s = 2$ months, the model gives

$$t^* \approx 9.1 \text{ months}, \quad \rho_i(t^*) \approx 1.49, \quad u_i(t^*) = A_i(t^*) \approx -0.04.$$

Note that $A_i(t^*)$ is itself negative. The optimal cycle delivers slightly negative net welfare. Quitting earlier delivers more negative welfare. Quitting later delivers more negative welfare. The system is stuck in a regime where *all* options lose money, and the best move is to lose the least.

Remark 1 (Why animals do this and humans don't)**.** *The MVT applies whenever a forager has access to an outside option of known average value. Birds use it because patches are short-lived, search is cheap, and the brain has dedicated circuitry for tracking running averages. Humans have long tenure, expensive search, mortgages, employer-tied health insurance, and no introspective access to $A_i(t^*)$. The math is the same. The implementation is harder.*

How t^* depends on the parameters. Three things move it.



Switch cost (left panel) raises t^* monotonically: expensive transitions force longer cycles. Environmental drift rate α (right panel) lowers t^* monotonically: a deteriorating environment makes each additional month worse, pulling the optimum forward. Match quality m_∞ shifts both curves up: better match means longer optimal cycles because the denominator collapses less.

The four-lever diagnostic. If you find yourself past threshold and contemplating quit, the model says exactly which lever applies.

What you can change	What it does to t^*
Reduce switch cost (network, savings, planning)	shifts t^* earlier
Reduce search time (better positioned for next role)	shifts t^* earlier
Reduce environmental drift (negotiate workload)	shifts t^* later
Raise match quality (find a role with higher m_∞)	shifts t^* later or to ∞

The asymmetry is informative. The first two levers make quitting easier. The second two make staying viable. There are no levers that "do nothing" to t^*. Every action you can take changes when you should leave.

Falsification routes.
Route 1. Predict actual quit timing from individual $(c_s, s, \alpha, m_\infty)$ estimates. The model says realized quits should cluster around t^* with deviations explained by liquidity constraints. If quits are uniform in t or correlate with calendar effects (year-end bonuses), the model is missing terms.
Route 2. Predict that high-c_s industries (Big Law, Medicine, Tenure Track, defense contracting) have systematically longer mean tenures. They do.
Route 3. Predict that workers with shorter expected search times (high-demand specialties, geographically mobile) quit earlier controlling for income. Test on labor mobility data.

Empirical anchors.

Quantity	Value	Source
Median tenure, US private sector (2024)	$\sim$ 3.9 years	BLS
Mean tenure, Big Law associate	$\sim$ 3.0 years	NALP
Mean tenure, US tech (FAANG)	$\sim$ 2.0 years	Industry surveys
Mean job-search duration (2024)	$\sim$ 6 months	BLS
Switch cost (median total compensation gap)	$\sim$ 2–4 months	Glassdoor

The tech tenure number is the diagnostic. Two years is short even compared to the v3 honeymoon-decay prediction of roughly 1.5 years to steady state ($3\tau_m$). Adding the v4 amortization layer pushes optimal t^* from 1.5 to roughly 2 years for typical tech parameters, which matches the observed mean. Big Law's longer tenure is consistent with high c_s (specialized human capital, partner-track lock-in). The model matches the rank ordering of industries.

The series in one table.

Post	What it added	What it took out
v1	Static threshold ρ^*	n/a
v2	Drift, private threshold, observer wedge	"rest fixes everything"
v3	Hedonic decay, denominator dynamics	"new job feels different is naivety"
v4	Optimal stopping, $u(t^*) = A(t^*)$	"quit when you cross threshold"

What this still does not address. Risk aversion (the model is risk-neutral; in practice, fear of unemployment biases t^* later). Job-market state ($A_i(t^*)$ depends on the average value of *available* next jobs, which fluctuates). Family or care obligations that lock c_s to a higher value than the worker can change. Anti-pattern quitting where someone leaves before t^* for emotional reasons and ends up in a worse role. The model gives the optimum; it does not guarantee implementation.

References

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