A Simple Model of AGI-Driven Demand Collapse

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1 The Core Mechanism: A Stylized Model

This presents a one-period model in which broad AGI can reduce *real* GDP even as it increases technical efficiency.[1] The key mechanism is that AGI shifts income away from high-MPC workers toward low-MPC owners. To avoid ambiguity about quantities versus expenditures and nominal versus real objects, we explicitly track the consumption price index. We also model "satiation" explicitly in a way that disciplines the price channel: lower prices can raise a component of consumption even at fixed income, but that increase is bounded.

1.1 Environment

Agents. The population has unit mass and is split into two groups: a share $\theta \in (0, 1)$ of *owners* (O) and a share $1 - \theta$ of *workers* (Z). Owners own firms and the non-labor input; workers supply labor and hold negligible wealth. This is a single short-run period in which ownership and the non-labor endowment are fixed.

[1] I thank Luis Garicano for invaluable comments, edits, and advice on this technical note. I also thank Usama Polani for comments, particularly for working out the labor share threshold conditions under which AGI leads to negative growth (Section 1.5).

Goods, varieties, and measurement. There is a continuum of differentiated varieties $i \in [0,1]$. Households consume a CES composite of varieties:

$$C_h \;=\; \left(\int_0^1 c_h(i)^{\frac{\sigma-1}{\sigma}}\, di \right)^{\frac{\sigma}{\sigma-1}}, \qquad \sigma > 1, \tag{1}$$

with corresponding CES price index

$$P \;=\; \left(\int_0^1 p(i)^{1-\sigma}\, di \right)^{\frac{1}{1-\sigma}}. \tag{2}$$

We measure *real* GDP as the quantity index of final output Y (in units of the composite good). Nominal GDP (total expenditure/revenue) is PY.

Firms, technology, and markups (Dixit–Stiglitz competition). Each variety i is produced by a monopolistically competitive firm with constant-returns technology that combines labor $\ell(i)$ and a non-labor input $k(i)$:

$$y(i) = A \left[\alpha\, \ell(i)^{\frac{\eta-1}{\eta}} + (1-\alpha)\, k(i)^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}}, \qquad \eta > 1, \tag{3}$$

where $A > 0$ is productivity, η is the elasticity of substitution in production, and $\alpha \in (0,1)$ controls labor intensity. The non-labor input $k(i)$ is interpreted broadly to include reproducible capital and scarce non-reproducible resources (land, energy, raw materials). Let w be the wage and r the rental rate on k. Because k includes scarce physical resources, we assume r is strictly positive and bounded away from zero.

Under CES demand (1), each firm faces isoelastic demand with elasticity σ, implying a constant markup $\mu = \frac{\sigma}{\sigma-1} > 1$ (Dixit–Stiglitz). Let $c(w, r; \alpha)$ denote unit cost. By symmetry, all varieties face identical factor prices and choose the same cost-minimizing input ratios, so unit costs are identical and we drop the variety index. The unit cost is

$$c(w, r; \alpha) = A^{-1} \left[\alpha^{\eta} w^{1-\eta} + (1-\alpha)^{\eta} r^{1-\eta} \right]^{\frac{1}{1-\eta}}, \tag{4}$$

and the (symmetric) price is

$$p = \mu\, c(w, r; \alpha). \tag{5}$$

In a symmetric equilibrium, $p(i) = p$ for all i, and therefore $P = p$.

Nominal income accounting and factor shares (closing profits). Let PY denote nominal GDP. With constant markup pricing $p = \mu c$, variable cost is a fraction $1/\mu$ of revenue and the remaining fraction $1 - 1/\mu$ is operating profit. Let λ_L and λ_K denote *cost shares* of labor and the non-labor input in marginal cost, so $\lambda_L + \lambda_K = 1$. Under CES production,

$$\lambda_L(\alpha; w, r) = \frac{\alpha^\eta w^{1-\eta}}{\alpha^\eta w^{1-\eta} + (1-\alpha)^\eta r^{1-\eta}}, \qquad \lambda_K = 1 - \lambda_L. \tag{6}$$

Aggregating across varieties, factor payments and profits satisfy

$$W = \frac{\lambda_L}{\mu}\, PY, \qquad rK = \frac{\lambda_K}{\mu}\, PY, \qquad \Pi = \left(1 - \frac{1}{\mu}\right) PY, \tag{7}$$

so that the nominal income identity holds exactly:

$$W + rK + \Pi = PY. \tag{8}$$

Define the corresponding *revenue shares*

$$s_L \equiv \frac{W}{PY} = \frac{\lambda_L}{\mu}, \qquad s_K \equiv \frac{rK}{PY} = \frac{\lambda_K}{\mu}, \qquad s_\Pi \equiv \frac{\Pi}{PY} = 1 - \frac{1}{\mu}, \tag{9}$$

so $s_L + s_K + s_\Pi = 1$. This closes the distribution of income mechanically from technology (α, η), factor prices (w, r), and the markup μ.

Accounting and closure. Because Y is *real* GDP (a quantity index in units of the CES composite) while PY is nominal GDP, the national income identity in this environment is $W + rK + \Pi = PY$. Dividing by the price index implies $Y = (W + rK + \Pi)/P$, so wages, rents, and profits are proportional to equilibrium output through the technology- and markup-implied revenue shares (s_L, s_K, s_Π). Hence, when demand determines a lower Y, the associated factor incomes and profits fall one-for-one with PY; they are not independent objects that can be held

fixed while output moves.

The AGI shock. AGI is modeled as eliminating (or sharply reducing) labor intensity. Formally, α falls from α_0 to α_1, with α_1 potentially close to zero. From (6)–(9), this implies a collapse in the wage share s_L and a corresponding rise in the owners' income share $1 - s_L$. Unit cost and the price index fall because labor is removed from marginal cost, but remain strictly positive because $r > 0$ reflects physical scarcity:

$$P' = \mu\, c(w, r; \alpha_1) > 0. \tag{10}$$

1.2 Preferences, satiation, and consumption behavior

Each household type $h \in \{O, Z\}$ chooses composite consumption C_h and savings S_h. The budget constraint is written in nominal terms:

$$P\, C_h + S_h = y_h, \tag{11}$$

where y_h is *nominal* income per household of type h (in units of the savings numeraire).

Stone–Geary with satiation. Stone–Geary preferences generate linear Engel curves but do not, by themselves, imply true satiation. To capture the idea that price declines can raise a component of spending but only up to a finite limit (e.g., we only need so much light), we introduce a *bounded, price-dependent* autonomous component of consumption. This is equivalent to a bliss point but with no decreasing utility once that satiation point is reached. Concretely, we assume the household has utility

$$U_h(C_h, S_h) = \beta_h \ln\big(C_h - \bar{c}_h(P)\big) + (1 - \beta_h)\ln(S_h), \qquad 0 < \beta_h < 1, \tag{12}$$

with domain $C_h \geq \bar{c}_h(P)$ and $S_h > 0$. The term $\bar{c}_h(P)$ summarizes the quantity of "baseline" consumption that households choose for categories with low income elasticities. We allow this baseline term to depend on the price index, and we

impose that its response is bounded:

$$\bar{c}_h'(P) \leq 0, \qquad \lim_{P \downarrow 0} \bar{c}_h(P) = \bar{c}_h < \infty. \tag{13}$$

Thus lower prices can raise baseline real consumption, but only up to a satiation level $\bar{c}_h$.

A convenient parametric specification satisfying (13) is

$$\bar{c}_h(P) = \underline{c}_h + (\bar{c}_h - \underline{c}_h) \cdot \frac{1}{1 + (P/\tilde{P})^{\xi}}, \qquad \xi > 0, \tag{14}$$

where $\underline{c}_h$ is the baseline when prices are high, $\bar{c}_h$ is the satiation level, and $\tilde{P}$ scales the price region where the baseline expands.

Consumption rule. Solving the household problem (12) subject to (11) yields the linear-expenditure rule

$$C_h = (1-\beta_h)\bar{c}_h(P) + \beta_h \frac{y_h}{P} \;\equiv\; \kappa_{0,h}(P) + \kappa_{1,h}\frac{y_h}{P}, \qquad \kappa_{0,h}(P) = (1-\beta_h)\bar{c}_h(P),\ \kappa_{1,h} = \beta_h. \tag{15}$$

We assume heterogeneous MPCs:

$$0 \leq \kappa_{1,O} \ll \kappa_{1,Z} \leq 1. \tag{16}$$

1.3 Equilibrium and the condition for negative growth

Income by type (per household). Workers receive the aggregate wage bill $W = s_L PY$, split equally among mass $1-\theta$ workers, so per-worker nominal income is

$$y_Z = \frac{W}{1-\theta} = \frac{s_L}{1-\theta} PY. \tag{17}$$

Owners receive the residual nominal income $(1-s_L)PY$, split equally among mass θ owners, so per-owner nominal income is

$$y_O = \frac{(1-s_L)PY}{\theta}. \tag{18}$$

Therefore per-household *real* incomes are

$$\frac{y_Z}{P} = \frac{s_L}{1-\theta} Y, \qquad \frac{y_O}{P} = \frac{1-s_L}{\theta} Y. \tag{19}$$

Aggregate consumption. Aggregate real consumption is population-weighted:

$$C = (1-\theta) C_Z + \theta C_O. \tag{20}$$

Using (15) and (19), we obtain

$$C = \underbrace{(1-\theta)\kappa_{0,Z}(P) + \theta \kappa_{0,O}(P)}_{\kappa_0(P)} + \kappa_{1,Z} s_L Y + \kappa_{1,O}(1-s_L) Y. \tag{21}$$

This expression makes explicit the two channels by which AGI affects demand: (i) it lowers the wage share s_L (redistribution), and (ii) it lowers prices P, which raises $\kappa_0(P)$ but only up to the bounded limits implied by satiation.

Demand-determined output. In the short run we abstract from investment and government spending and take (w, r) as given. Firms accommodate demand at price P by choosing inputs, so real output equals real consumption:

$$Y = C. \tag{22}$$

Substituting (21) into (22) yields

$$Y = \kappa_0(P) + \left[\kappa_{1,Z} s_L + \kappa_{1,O}(1-s_L)\right] Y. \tag{23}$$

Define the aggregate MPC

$$\mathrm{AMPC}(s_L) \equiv \kappa_{1,Z} s_L + \kappa_{1,O}(1-s_L) = \kappa_{1,O} + (\kappa_{1,Z} - \kappa_{1,O}) s_L, \tag{24}$$

so equilibrium output is

$$Y = \frac{\kappa_0(P)}{1 - \mathrm{AMPC}(s_L)}. \tag{25}$$

AGI and the demand-collapse condition. Let s_L and P denote the pre-AGI wage share and price index implied by (9) and (5) at $\alpha = \alpha_0$; let s_L' and P' denote the

post-AGI counterparts at $\alpha = \alpha_1$. Post-AGI output is

$$Y' = \frac{\kappa_0(P')}{1 - \text{AMPC}(s'_L)}. \tag{26}$$

Real GDP falls after AGI ($Y' < Y$) if and only if

$$\boxed{\frac{\kappa_0(P')}{1 - \left[\kappa_{1,Z} s'_L + \kappa_{1,O}(1 - s'_L)\right]} < \frac{\kappa_0(P)}{1 - \left[\kappa_{1,Z} s_L + \kappa_{1,O}(1 - s_L)\right]}.} \tag{27}$$

Equivalently,

$$\boxed{\frac{\kappa_0(P')}{\kappa_0(P)} < \frac{1 - \text{AMPC}(s'_L)}{1 - \text{AMPC}(s_L)}.} \tag{28}$$

Interpretation. The numerator $\kappa_0(P)$ captures the price-sensitive component of baseline consumption. Because $\kappa_0(P)$ is bounded above by satiation ((13)), even large price declines cannot generate arbitrarily large additional demand: $\kappa_0(P')/\kappa_0(P)$ is limited. The denominator captures the Keynesian multiplier. AGI lowers labor's share s_L to s'_L, shifting income toward owners. Since $\kappa_{1,O} \ll \kappa_{1,Z}$, this reduces the aggregate MPC $\text{AMPC}(s_L)$ and shrinks the multiplier $1/(1 - \text{AMPC})$. Output falls when the shrinkage in the multiplier dominates the bounded increase in baseline consumption generated by lower prices, as in (28). Importantly, this condition is fully "closed": profits are not an independent term but a fixed share of nominal revenue under monopolistic competition, $s_\Pi = 1 - 1/\mu$, and all incomes satisfy $W + rK + \Pi = PY$ by construction.

1.4 A Simple Calibration

This subsection illustrates the closed-form equilibrium:

$$Y = \frac{\kappa_0(P)}{1 - \text{AMPC}(s_L)}, \qquad \text{AMPC}(s_L) \equiv \kappa_{1,Z} s_L + \kappa_{1,O}(1 - s_L),$$

and the demand-collapse condition

$$\frac{\kappa_0(P')}{\kappa_0(P)} < \frac{1 - \text{AMPC}(s'_L)}{1 - \text{AMPC}(s_L)}.$$

Crucially, in this model factor incomes are not free objects: for any equilibrium scale (P, Y) they satisfy the national income identity

$$W + rK + \Pi = PY,$$

so post-AGI wages, rents, and profits move one-for-one with nominal GDP (and cannot be held fixed when Y changes).

Pre-AGI normalization. Normalize the pre-AGI consumption price index to $P = 1$ and scale the economy so that pre-AGI real GDP is $Y = 100$. Let the pre-AGI wage share be

$$s_L = 0.60,$$

and assume heterogeneous MPCs

$$\kappa_{1,Z} = 0.90, \qquad \kappa_{1,O} = 0.20.$$

Then the aggregate MPC is

$$\text{AMPC}(s_L) = \kappa_{1,O} + (\kappa_{1,Z} - \kappa_{1,O})s_L = 0.20 + 0.70 \cdot 0.60 = 0.62,$$

so matching $Y = 100$ implies

$$\kappa_0(P) = Y\big(1 - \text{AMPC}(s_L)\big) = 100 \cdot (1 - 0.62) = 38.$$

Given $P = 1$, nominal GDP is $PY = 100$. The nominal wage bill is therefore

$$W = s_L\, PY = 0.60 \cdot 100 = 60,$$

and owners receive the residual $(1 - s_L)PY = 40$ in the form of non-labor payments and operating profits.

Post-AGI changes: redistribution and prices. Suppose AGI sharply reduces labor intensity so that the wage share collapses to

$$s_L' = 0.05.$$

Assume the unit-cost reduction lowers the consumption price index by 30%, so

$$P' = 0.7.$$

To discipline the price channel, parameterize the price-dependent autonomous component as a bounded "satiation" function (a direct aggregate analogue of the bounded $\bar{c}_h(P)$ specification):

$$\kappa_0(P) = \underline{\kappa}_0 + (\overline{\kappa}_0 - \underline{\kappa}_0) \cdot \frac{1}{1 + (P/\widetilde{P})^{\xi}}, \qquad (\underline{\kappa}_0, \overline{\kappa}_0, \widetilde{P}, \xi) = (34, 42, 1, 3).$$

This implies $\kappa_0(1) = 34 + (42 - 34)/2 = 38$ and

$$\kappa_0(0.7) = 34 + \frac{8}{1 + 0.7^3} \approx 40,$$

so the fall in prices raises baseline consumption modestly but cannot raise it without bound (it is capped by $\overline{\kappa}_0 = 42$).

With $s'_L = 0.05$, the post-AGI aggregate MPC is

$$\text{AMPC}(s'_L) = \kappa_{1,O} + (\kappa_{1,Z} - \kappa_{1,O}) s'_L = 0.20 + 0.70 \cdot 0.05 = 0.235,$$

so post-AGI real GDP is

$$Y' = \frac{\kappa_0(P')}{1 - \text{AMPC}(s'_L)} \approx \frac{40}{1 - 0.235} = \frac{40}{0.765} \approx 52.3.$$

Thus real GDP falls from 100 to about 52 even though prices fall.

Accounting. Given $P' = 0.7$ and $Y' \approx 52.3$, nominal GDP is

$$P'Y' \approx 0.7 \cdot 52.3 \approx 36.6.$$

The implied wage bill is

$$W' = s'_L P'Y' \approx 0.05 \cdot 36.6 \approx 1.8,$$

and owners receive the residual $(1 - s'_L)P'Y' \approx 34.8$ in non-labor payments and operating profits. Importantly, these nominal income objects are *implied* by the equilibrium (P', Y') and the revenue shares; they are not imposed.

Checking the demand-collapse condition. The ratio condition holds numerically:

$$\frac{\kappa_0(P')}{\kappa_0(P)} \approx \frac{40}{38} = 1.05 \qquad < \qquad \frac{1 - \text{AMPC}(s'_L)}{1 - \text{AMPC}(s_L)} = \frac{0.765}{0.38} \approx 2.01,$$

so $Y' < Y$ as predicted.

1.5 Threshold Analysis: How Large Must the Labor-Share Collapse Be?

The calibration above showed that GDP can fall after AGI under specific parameter values. But how sensitive is this result? In this subsection, we derive a closed-form expression for the *minimum* post-AGI labor share required to prevent GDP from falling, as a function of the price-induced expansion in baseline consumption.

1.5.1 Reformulating with Linear Aggregate MPC

It is useful to rewrite the model in terms of the MPC gap. Let workers have MPC $\kappa_{1,Z}$ and owners have MPC $\kappa_{1,O}$, with

$$0 \leq \kappa_{1,O} \ll \kappa_{1,Z} \leq 1.$$

Define the MPC gap as $\Delta\kappa \equiv \kappa_{1,Z} - \kappa_{1,O} > 0$. Then the aggregate MPC can be written as:

$$\text{AMPC}(s_L) = \kappa_{1,O} + \Delta\kappa\, s_L.$$

This makes clear that the aggregate MPC is linear in the labor share, with slope equal to the MPC gap.

In the static demand-determined equilibrium with baseline consumption $\kappa_0(P)$,

output satisfies:

$$Y = C = \kappa_0(P) + \text{AMPC}(s_L) \cdot Y \quad \Rightarrow \quad Y(P, s_L) = \frac{\kappa_0(P)}{1 - \text{AMPC}(s_L)} = \frac{\kappa_0(P)}{1 - \kappa_{1,O} - \Delta\kappa\, s_L}.$$

1.5.2 Comparative Statics with Respect to Labor Share

For fixed prices P, the effect of a decline in labor share on output is:

$$\frac{\partial Y}{\partial s_L} = \kappa_0(P) \cdot \frac{\Delta\kappa}{(1 - \kappa_{1,O} - \Delta\kappa\, s_L)^2} > 0,$$

confirming that a decline in labor share (all else equal) reduces output whenever workers have higher MPC than owners.

If baseline consumption is bounded by satiation, $\lim_{P \to 0} \kappa_0(P) = \bar{c} < \infty$, then for any s_L:

$$Y(P, s_L) \leq \frac{\bar{c}}{1 - \text{AMPC}(s_L)},$$

so once $\kappa_0(P)$ approaches its ceiling, further price declines have limited ability to offset a shrinking multiplier.

1.5.3 Deriving the Threshold Labor Share

Let pre-AGI values be (P, s_L) and post-AGI values be (P', s_L'). Define the **baseline-consumption expansion factor**:

$$g \equiv \frac{\kappa_0(P')}{\kappa_0(P)}.$$

When AGI lowers prices, $g > 1$ captures the boost to baseline consumption (bounded by satiation).

The ratio of post-AGI to pre-AGI output is:

$$\frac{Y'}{Y} = \frac{\kappa_0(P')}{\kappa_0(P)} \cdot \frac{1 - \text{AMPC}(s_L)}{1 - \text{AMPC}(s_L')} = g \cdot \frac{1 - \kappa_{1,O} - \Delta\kappa\, s_L}{1 - \kappa_{1,O} - \Delta\kappa\, s_L'}.$$

In log form:

$$\Delta \ln Y = \ln g + \ln(1 - \text{AMPC}(s_L)) - \ln(1 - \text{AMPC}(s_L')).$$

The condition for *no decline* ($Y' \geq Y$) is:

$$g\,(1 - \kappa_{1,O} - \Delta\kappa\, s_L) \geq \left(1 - \kappa_{1,O} - \Delta\kappa\, s'_L\right).$$

Solving for the minimum post-AGI labor share that prevents a fall in GDP:

$$\boxed{s'_L \geq s^*_L(g) \equiv \frac{(1 - \kappa_{1,O}) - g(1 - \kappa_{1,O} - \Delta\kappa\, s_L)}{\Delta\kappa}}$$

A demand-driven output fall occurs whenever $s'_L < s^*_L(g)$.

1.5.4 Interpretation of the Threshold

The threshold $s^*_L(g)$ has a natural interpretation: for any given baseline-consumption expansion factor g, it is the minimum post-AGI labor income share required to prevent demand-determined GDP from falling, given the assumed MPC heterogeneity.

Several properties follow immediately:

- When $g = 1$ (no price-induced boost), the threshold equals the pre-AGI labor share: $s^*_L(1) = s_L$. Any decline in labor share reduces GDP.
- As g increases, the threshold $s^*_L(g)$ falls. Larger price-induced gains in baseline consumption can offset larger redistributions away from workers.
- For sufficiently large g, the threshold can become negative, meaning GDP rises regardless of how far labor share falls. However, satiation bounds g from above.

1.5.5 Calibration of the Threshold Curve

Using the calibration from Section 1.4—$\kappa_{1,Z} = 0.90$, $\kappa_{1,O} = 0.20$ (so $\Delta\kappa = 0.70$), and pre-AGI $s_L = 0.60$—we can compute the threshold curve explicitly.

Pre-AGI, the aggregate MPC is:

$$\text{AMPC}(s_L) = 0.20 + 0.70 \times 0.60 = 0.62,$$

so the pre-AGI multiplier denominator is $1 - 0.62 = 0.38$.

If baseline consumption rises from 38 to 40 (as in Section 1.4), then:

$$g = \frac{40}{38} \approx 1.053.$$

Plugging into the closed-form threshold:

$$s_L^*(g) = \frac{(1 - 0.20) - 1.053 \times 0.38}{0.70} = \frac{0.80 - 0.40}{0.70} = \frac{0.40}{0.70} \approx 0.571.$$

So, given $g \approx 1.05$ (only a $\sim$5% increase in baseline consumption due to lower prices), the model predicts that demand-determined GDP avoids falling *only if* the post-AGI labor share remains above roughly 57%. Any post-AGI $s_L' < 0.57$ implies $Y'/Y < 1$.

Intuitively, the threshold stays close to the pre-AGI share $s_L = 0.60$ because $g \approx 1.05$ is only a small baseline-consumption boost, while the MPC gap $\Delta\kappa = 0.70$ means mechanically that even small declines in s_L sharply reduce the multiplier $1/(1 - \text{AMPC})$.

1.5.6 Graphical Representation

Figure 1 plots the threshold curve $s_L^*(g)$ for the calibration above. The horizontal axis shows the baseline-consumption expansion factor $g = \kappa_0(P')/\kappa_0(P)$; the vertical axis shows the threshold labor share.

The figure illustrates why the demand-collapse result requires extreme assumptions. For GDP to fall, the post-AGI labor share must lie in the red region—below the threshold curve. With realistic bounds on how much baseline consumption can expand (satiation limits g to modest values above 1), avoiding negative growth requires only that some substantial share of income continues to flow to high-MPC households. Complete or near-complete automation ($s_L' \to 0$) combined with bounded satiation (g only modestly above 1) is the knife-edge case that generates the demand collapse.

2 Fundamentals: Satiation, Prices, and Reallocation

This section shows that a large decline in output and employment can arise in a competitive economy with flexible prices and profit-maximizing firms, once

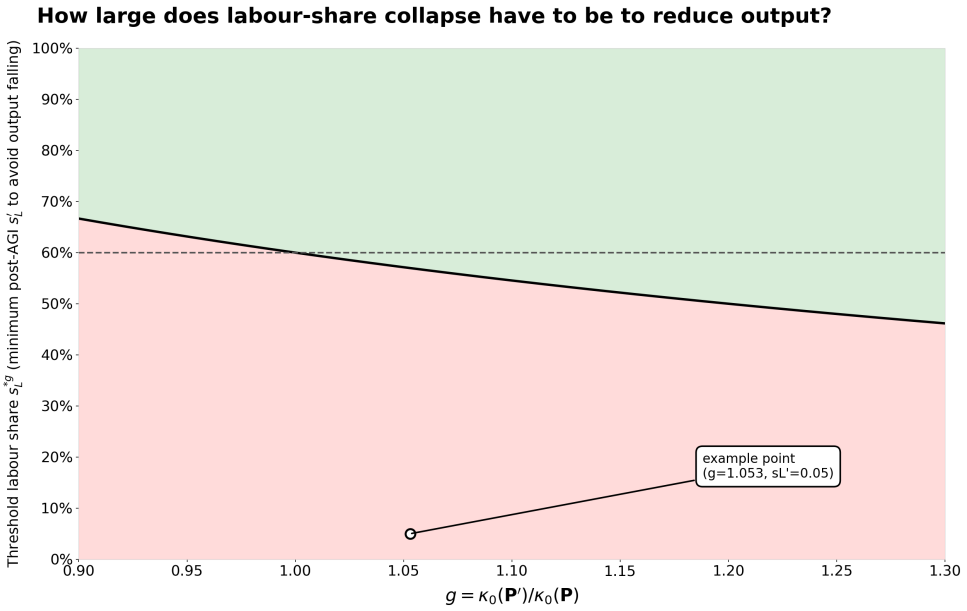

FIGURE 1: HOW LARGE DOES LABOR-SHARE COLLAPSE HAVE TO BE TO REDUCE GDP? THE BLACK CURVE SHOWS THE THRESHOLD $s_L^*(g)$: THE MINIMUM POST-AGI LABOR SHARE REQUIRED TO AVOID A FALL IN DEMAND-DETERMINED GDP. THE RED REGION BELOW THE CURVE CORRESPONDS TO PARAMETER COMBINATIONS WHERE $s_L' < s_L^*(g)$ AND GDP FALLS. THE GREEN REGION ABOVE THE CURVE CORRESPONDS TO COMBINATIONS WHERE GDP IS MAINTAINED OR RISES. THE DASHED HORIZONTAL LINE MARKS THE PRE-AGI LABOR SHARE (60%). THE EXAMPLE POINT $(g = 1.053, s_L' = 0.05)$ FROM THE CALIBRATION LIES DEEP IN THE RED REGION, CONFIRMING THE ∼48% OUTPUT DECLINE COMPUTED IN SECTION 1.4. CALIBRATION: $\kappa_{1,Z} = 0.90$, $\kappa_{1,O} = 0.20$, $\Delta\kappa = 0.70$, PRE-AGI $s_L = 0.60$.

we introduce the fundamental ingredient that is doing essential work throughout the paper: bounded demand / satiation. The key point is conceptual: in a standard Walrasian general equilibrium with convex technologies and locally nonsatiated preferences, competitive equilibria are efficient and markets clear. To obtain underutilized labor with flexible prices, one must either introduce a wedge (search, bargaining, wage floors, etc.) *or* allow true satiation so that some goods (and therefore some factors) are inessential at the margin. This case considers the Nordhaus-inspired (cannot consume infinite electricity) latter channel.

2.1 Competitive Equilibrium with Flexible Prices and Satiation

We consider an equilibrium concept that is standard in general equilibrium with free disposal and possible satiation: markets clear with inequalities, and any strictly positive price implies no excess supply. Formally, for any good j, we allow $Y_j \geq C_j$ with the complementarity condition $p_j(Y_j - C_j) = 0$. Likewise, labor may be underutilized if its competitive price is zero: $L_A + L_B \leq 1$ and $w(1 - L_A - L_B) = 0$. This allows the economy to leave some labor endowment idle (*nonemployment*) without invoking nominal rigidities.

This is also the place where "satiation" matters. The previous section modeled bounded demand responses to falling prices via $\kappa_0(P)$ and $\bar{c}_h(P)$; here we use a two-sector structure and impose an explicit upper bound on demand in an absorption sector to show why reallocation can fail even with fully flexible prices.

2.2 Environment

Goods and factors. There are two final goods: an *automatable* good A and a *non-automated* (or "absorption-limited") good B. There are two primary factors: labor L (total endowment normalized to 1) and a fixed non-labor factor T (land/energy/compute), endowment $T > 0$.

Households and ownership. The population has unit mass with two types: a share θ of owners O and a share $1 - \theta$ of workers Z. Workers supply labor and hold negligible wealth. Owners hold all claims to the fixed factor T (and any proprietary claims associated with AGI capital). This concentrated ownership is the source of the redistribution in the post-AGI economy.

Technology (competitive firms). Both sectors are competitive. Let (p_A, p_B) denote goods prices and (w, r) the wage and rental rate of T. Technologies are:

$$Y_A = F_A(L_A, T_A) \qquad \text{(pre-AGI)}, \tag{29}$$

$$Y'_A = \widetilde{F}_A(T_A) \qquad \text{(post-AGI, labor eliminated in } A\text{)}, \tag{30}$$

$$Y_B = F_B(L_B, T_B) \qquad \text{(always)}, \tag{31}$$

with $T_A + T_B \leq T$ and $L_A + L_B \leq 1$. We assume F_A, F_B are increasing and concave. The post-AGI function $\widetilde{F}_A$ captures "strong automation": for any given T_A, it yields (weakly) more output than the pre-AGI technology because labor tasks in sector A have been automated.

Because firms are competitive and technologies are CRS (or can be interpreted as "constant returns in variable inputs" with free entry), equilibrium profits are zero. Owners' income arises from rents on the fixed factor T and any scarcity rents/IP rents embedded in r (this is the competitive analogue of "profits+rents" in the previous section).

2.3 Preferences and Bounded Absorption Demand

We keep the *spirit* of the demand block in the previous section: high-MPC workers versus low-MPC owners, plus a bounded price channel. To make the reallocation result sharp in a competitive GE, we impose an *explicit bounded-demand assumption* for good B.

Total consumption spending and MPC heterogeneity. Write each household's nominal budget as

$$p_A c_A^h + p_B c_B^h + S_h = y_h,$$

and assume the same heterogeneous marginal propensities to consume out of income (the objects $\kappa_{1,h}$ from previous section):

$$0 \leq \kappa_{1,O} \ll \kappa_{1,Z} \leq 1.$$

(One can microfound this with Stone–Geary-with-$\bar{c}_h(P)$ block; we do not repeat the derivation.)

True satiation for the absorption good B. The key additional assumption is that demand for B is *bounded* even as income rises and prices fall. Concretely, suppose that for each type h there exists a finite satiation level $\overline{b}_h < \infty$ such that the household never chooses $c_B^h > \overline{b}_h$ at any prices or incomes:

$$c_B^h \leq \overline{b}_h \qquad \text{for all } (p_A, p_B, y_h). \tag{32}$$

This is the GE analogue of previous section's bounded price channel: lower prices raise baseline consumption but only up to a finite limit; here, the "absorption sector" has a literal upper bound on desired quantities. (In the limit as $\kappa_{1,O} \to 0$ and baseline demands approach finite caps, (32) is the natural limiting case.)

Let the implied aggregate satiation bound be

$$\overline{B} \equiv (1-\theta)\,\overline{b}_Z + \theta\,\overline{b}_O. \tag{33}$$

Then, regardless of how large owners' income becomes, equilibrium consumption of B cannot exceed $\overline{B}$.

2.4 Pre-AGI Benchmark

Before AGI, both sectors employ labor. We assume there exists a competitive equilibrium with interior production in both sectors and strictly positive wages:

$$L_A + L_B = 1, \qquad w > 0,$$

so workers earn wage income and aggregate spending is supported by the high-MPC group.

We do not need to solve this benchmark in detail; it only serves to define a pre-AGI economy in which labor is employed at scale and wage income is quantitatively important.

2.5 Post-AGI Equilibrium: Reallocation Failure

After AGI, sector A no longer uses labor: $L_A' = 0$. All labor can only be reallocated to the residual sector B.

Goods-market feasibility and bounded employment in B. Because B demand is bounded by $\overline{B}$, goods-market clearing with free disposal implies equilibrium production of B cannot exceed $\overline{B}$. In particular, any competitive equilibrium must satisfy

$$Y_B \geq C_B \quad \text{and} \quad C_B \leq \overline{B}, \tag{34}$$

and (if $p_B > 0$) the complementarity condition forces $Y_B = C_B$.

Define the *labor requirement* to produce $\overline{B}$ given some T_B as the smallest labor input that can generate $\overline{B}$ units:

$$\underline{L}_B(\overline{B}, T_B) \equiv \inf\{L_B \in [0,1] : F_B(L_B, T_B) \geq \overline{B}\}.$$

If $\underline{L}_B(\overline{B}, T_B) < 1$, then even producing up to satiation in B does not require all available labor.

Lemma 1 (Bounded absorption and nonemployment). *Suppose that in the post-AGI economy, for the equilibrium allocation of T_B,*

$$\underline{L}_B(\overline{B}, T_B) < 1. \tag{35}$$

Then there exists a competitive equilibrium with flexible prices in which $L'_A = 0$ and $L^*_B = \underline{L}_B(\overline{B}, T_B) < 1$. The remaining labor endowment $1 - L^*_B$ is idle (nonemployed).

Interpretation. Condition (35) is the formal "reallocation fails" statement: even if all displaced workers attempted to move into the non-automated sector, the absorption sector cannot profitably expand beyond $\overline{B}$ because households are already satiated in B. With flexible prices, the economy therefore sets the marginal value of additional B output to zero, and labor becomes inessential at the margin. Equivalently, the competitive economy has no reason to use all labor when additional output is not demanded at any positive marginal value.

Owner income and the role of the fixed factor T. After AGI, sector A uses only T but can be very productive: $\widetilde{F}_A(T_A)$ can be large even though T is fixed. The owners capture the resulting rents through the rental rate r on T. This delivers the same redistribution emphasized in the previous section: labor income becomes small because only sector B uses labor, while non-labor income (rents on T and

any AGI-related scarcity rents) becomes dominant.

2.6 Connection to "Demand Collapse"

The previous section can be read as a reduced-form short-run demand determination in which real output satisfies $Y = C$ and equilibrium spending depends on (i) the income distribution between workers and owners (the wage share), and (ii) the bounded price channel $\kappa_0(P)$. The competitive GE here provides a supply-side micro-foundation for why the wage share can collapse *endogenously* after broad automation: once A no longer demands labor and B cannot expand beyond satiation, the aggregate wage bill is mechanically limited by the maximum scale of the residual labor-using sector.

In that situation, the high-MPC group (workers) receives little income, so aggregate spending reflects the low-MPC behavior of owners. This is precisely the logic of the previous section's condition: the multiplier shrinks when the wage share collapses, and the bounded price-induced expansion in baseline demand cannot offset the redistribution away from the high-MPC group.

2.7 Potential Output vs Realized Output

Finally, it is useful to be explicit about what "potential output" means in this competitive, satiated economy. Technological potential output is the maximum feasible production given $(T, 1)$ and the post-AGI technologies:

$$Y_A^{\text{pot}} = \max_{T_A \le T} \widetilde{F}_A(T_A), \qquad Y_B^{\text{pot}} = \max_{L_B \le 1,\, T_B \le T} F_B(L_B, T_B).$$

AGI can raise Y_A^{pot} substantially by increasing the productivity of T in sector A. However, with bounded absorption in B and low-MPC owners, equilibrium demand need not rise commensurately. In a satiated competitive equilibrium, producing beyond the satiation region is technically feasible but has zero marginal value (and therefore does not occur at positive prices), so realized output and employment can be far below the technological frontier even with fully flexible prices.

2.8 Reallocation and Saturated Absorption Sectors

The competitive equilibrium above formalized the intuition that reallocation fails if the residual labor-using sector is *demand-bounded*. Here we connect that logic back to the closed-form demand system in the previous section and show that the demand-collapse mechanism does *not* require labor income to vanish entirely. It is sufficient that, after AGI, reallocation can sustain only a *small* wage share because the main "absorption" sectors are close to satiation.

Partial automation and a bound on the post-AGI wage share. Suppose AGI fully automates a large set of tasks/sectors A (so labor demand there falls sharply), but a subset of sectors B still requires labor. Let W denote the pre-AGI aggregate wage bill and W' the post-AGI aggregate wage bill (generated only in the residual labor-using sectors B).

If demand for the absorption sectors B is relatively saturated, then even with full sectoral reallocation, there is a *finite* upper bound on how much labor income can be supported in equilibrium. A convenient reduced-form way to state this is:

$$W' \leq \overline{W}_B, \tag{36}$$

where $\overline{W}_B$ is the maximum wage bill consistent with the demand-constrained scale of the labor-using sectors. In the two-sector competitive model above, such a bound arises because equilibrium output (and hence equilibrium factor payments) in sector B cannot expand beyond what households are willing to buy at the margin; equivalently, equilibrium employment in B is bounded above by demand.

To express this in the notation of the previous section, let P denote the consumption price index and Y real GDP (in units of the composite good), so nominal GDP is PY. Define wage shares:

$$s_L \equiv \frac{W}{PY}, \qquad s'_L \equiv \frac{W'}{P'Y'}. \tag{37}$$

Limited absorption in B implies that the post-AGI wage share is bounded above:

$$s'_L \leq \bar{s}_L < s_L, \tag{38}$$

where $\bar{s}_L$ is small when (i) the automated part of the economy is large in nominal terms and/or (ii) the labor-using sectors are demand-bounded so that (36) binds.

Output with partial reallocation. The first section showed that, with heterogeneous MPCs and a bounded, price-dependent baseline term, aggregate demand for the composite good takes the form

$$C = \kappa_0(P) + \mathrm{AMPC}(s_L)\, Y, \qquad \mathrm{AMPC}(s_L) = \kappa_{1,Z} s_L + \kappa_{1,O}(1 - s_L),$$

and goods-market clearing implies the closed-form equilibrium:

$$Y = \frac{\kappa_0(P)}{1 - \mathrm{AMPC}(s_L)}. \tag{39}$$

After AGI (with partial reallocation into the residual labor-using sectors),

$$Y' = \frac{\kappa_0(P')}{1 - \mathrm{AMPC}(s_L')}. \tag{40}$$

Therefore the equilibrium output ratio is

$$\frac{Y'}{Y} = \underbrace{\frac{\kappa_0(P')}{\kappa_0(P)}}_{\text{bounded price/baseline channel}} \cdot \underbrace{\frac{1 - \mathrm{AMPC}(s_L)}{1 - \mathrm{AMPC}(s_L')}}_{\text{multiplier (distribution) channel}}. \tag{41}$$

The reallocation version of the demand-collapse condition. Real GDP falls after AGI ($Y' < Y$) if and only if

$$\boxed{\frac{\kappa_0(P')}{\kappa_0(P)} < \frac{1 - \mathrm{AMPC}(s_L')}{1 - \mathrm{AMPC}(s_L)}.} \tag{42}$$

This is the same ratio condition as in the first section; the only difference is that here s_L' is *not* driven to zero mechanically, but is endogenously limited by the capacity of the labor-using absorption sectors.

A useful sufficient condition follows immediately from (38): since $\mathrm{AMPC}(s_L)$ is increasing in s_L when $\kappa_{1,Z} > \kappa_{1,O}$, a smaller post-AGI wage share implies a smaller aggregate MPC and thus a smaller multiplier. Hence, if $s_L' \le \bar{s}_L$ and the baseline term is bounded above by satiation (i.e., $\kappa_0(P')/\kappa_0(P)$ cannot become ar-

bitrarily large), then (42) will hold whenever the redistribution-induced shrinkage in the multiplier dominates the bounded increase in baseline consumption from lower prices.

Interpretation. Reallocation can prevent a collapse only if it restores a large flow of labor income, because workers are the high-MPC group ($\kappa_{1,Z} \gg \kappa_{1,O}$). When the absorption sectors are demand-bounded, however, equilibrium employment and the wage bill they can sustain are limited, so the post-AGI wage share s'_L remains low (bounded above by $\bar{s}_L$). This pushes the aggregate MPC toward the owners' MPC and shrinks the Keynesian multiplier term $1/(1 - \text{AMPC})$ in (41). Meanwhile, the price channel operates only through the baseline term $\kappa_0(P)$, which is explicitly bounded by satiation in the first section. Condition (42) therefore captures the core point: even when some labor remains employable in principle, reallocation cannot restore full employment or high output if the remaining labor-using sectors are saturated and ownership is concentrated, because the resulting income distribution implies too low an aggregate propensity to spend.

3 Dynamics: The Path to Stagnation

Previous sections established that broad automation can generate an immediate fall in real output because the wage share collapses, lowering the aggregate marginal propensity to consume. We now embed that mechanism in a simple dynamic environment with capital accumulation. The goal is to show how an initial demand-driven contraction can persist via a multiplier–accelerator feedback: low demand depresses investment, which shrinks the capital stock and thereby reinforces weak demand and low output.

This section is deliberately stylized. It should be interpreted as a short-to-medium-run reduced-form approximation to a richer intertemporal heterogeneous-agent model. The advantage of this approach is transparency: the algebra makes clear how a technology-driven fall in the wage share lowers the multiplier and can trigger capital decumulation even when prices and wages are flexible.

3.1 Framework and accounting

Time is discrete, $t = 0, 1, 2, \ldots$. Real output Y_t is measured in units of the consumption composite from the first section, and P_t denotes the corresponding CES price index. Nominal GDP is $P_t Y_t$.

We assume the same "one composite good" accounting for consumption and investment:

$$Y_t = C_t + I_t, \tag{43}$$

where C_t is aggregate *real* consumption and I_t is *real* investment (measured in the same composite units).

Reproducible capital accumulates according to

$$K_{t+1} = (1 - \delta)K_t + I_t, \qquad \delta \in (0, 1). \tag{44}$$

Distributional state. Let $s_{L,t} \in [0, 1]$ denote labor's share of *nominal* income in period t:

$$W_t = s_{L,t}\, P_t Y_t, \qquad Y_{O,t} = (1 - s_{L,t})\, P_t Y_t.$$

In the first section, $s_{L,t}$ is pinned down by technology and markups (via cost shares and the markup μ). In the previous section, $s_{L,t}$ can also be interpreted as the revenue share generated in the residual labor-using sector after reallocation. In either case, the key implication of AGI is a large decline from a pre-AGI s_L to a post-AGI $s_L' \ll s_L$ (not necessarily literally zero).

3.2 Consumption, satiation, and the aggregate MPC

We keep the consumption block. Aggregate real consumption is

$$C_t = \kappa_0(P_t) + \kappa_{1,Z} s_{L,t} Y_t + \kappa_{1,O}(1 - s_{L,t}) Y_t = \kappa_0(P_t) + \mathrm{AMPC}(s_{L,t})\, Y_t, \tag{45}$$

where

$$\mathrm{AMPC}(s_{L,t}) \equiv \kappa_{1,Z} s_{L,t} + \kappa_{1,O}(1 - s_{L,t}) = \kappa_{1,O} + (\kappa_{1,Z} - \kappa_{1,O}) s_{L,t}. \tag{46}$$

The term $\kappa_0(P_t)$ is the price-dependent baseline component introduced in the first section. By construction, it can increase when P_t falls, but it is bounded by satia-

tion: even large price declines cannot generate unbounded additional demand.

Combining (43) and (45) yields an equilibrium output relation each period:

$$Y_t = \frac{\kappa_0(P_t) + I_t}{1 - \mathrm{AMPC}(s_{L,t})}. \tag{47}$$

Relative to the first section, investment I_t is now an additional component of autonomous demand that is *endogenous*.

3.3 Investment, the cost of capital, and the natural rate

A standard objection to demand-driven stagnation is that the redistribution toward high-saving owners should lower the real interest rate and induce more investment. To address this explicitly, we let desired investment depend on *both* (i) expected demand (an accelerator channel) and (ii) the user cost of capital (an interest-rate channel).

Desired capital and partial adjustment. Let ρ_t denote the (net) real interest rate relevant for investment decisions, and let $\nu(\rho_t)$ denote the desired capital–output ratio, with

$$\nu'(\rho) < 0, \tag{48}$$

so that a lower real rate raises desired capital intensity. Let firms form simple adaptive expectations about sales:

$$Y_t^e = Y_{t-1}. \tag{49}$$

Then desired capital is

$$K_t^* = \nu(\rho_t)\, Y_t^e. \tag{50}$$

Investment follows a standard partial-adjustment rule:

$$I_t = \delta K_t + \lambda \left(K_t^* - K_t\right), \qquad \lambda \in (0, 1]. \tag{51}$$

The first term replaces depreciated capital; the second term adjusts toward the desired stock. When expected demand falls sharply, K_t^* can drop below K_t, making net investment negative (disinvestment).

A bound on interest rate adjustment. In a full intertemporal GE, the real interest rate would adjust to reconcile desired saving and desired investment. In practice, there are well-known reasons this adjustment may be limited (e.g., an effective lower bound from a nominal zero lower bound (ZLB) with anchored inflation expectations, safe-asset constraints, or other wedges). We capture this in reduced form by assuming an effective lower bound:

$$\rho_t \geq \underline{\rho}. \tag{52}$$

Natural rate. Let $\bar{Y}_t$ denote a notion of "potential" (full-employment) output given technology and factor endowments. Define the *natural real rate* ρ_t^* as the real rate that would make goods-market demand consistent with $\bar{Y}_t$ in a stationary environment. Using (43) and (45), full-employment requires

$$\bar{Y}_t = \kappa_0(P_t) + \mathrm{AMPC}(s_{L,t})\,\bar{Y}_t + \bar{I}_t(\rho_t^*), \tag{53}$$

where $\bar{I}_t(\rho)$ is the investment consistent with $\bar{Y}_t$. In a steady state with $K = \nu(\rho)\bar{Y}_t$, maintenance investment is $\bar{I}_t(\rho) = \delta\nu(\rho)\bar{Y}_t$. Substituting implies

$$\delta\nu(\rho_t^*) = 1 - \mathrm{AMPC}(s_{L,t}) - \frac{\kappa_0(P_t)}{\bar{Y}_t}. \tag{54}$$

This expression makes the secular-stagnation logic transparent. When AGI reduces the wage share $s_{L,t}$, $\mathrm{AMPC}(s_{L,t})$ falls, so $1 - \mathrm{AMPC}(s_{L,t})$ rises: desired net saving at full employment increases. To sustain $\bar{Y}_t$ in equilibrium, investment must rise enough to absorb that saving. The only way to induce that (in this reduced-form environment) is for ρ_t^* to fall so that $\nu(\rho_t^*)$ rises. If the distributional shift is large, (54) can require $\rho_t^* < \underline{\rho}$. In that case, even with flexible prices and profit-maximizing firms, the economy cannot attain $\bar{Y}_t$ because the real rate cannot adjust enough; output must fall until demand is consistent with the feasible interest rate.

3.4 The multiplier–accelerator spiral

Combining (47), (50)–(51), and (49), equilibrium output satisfies

$$Y_t = \frac{\kappa_0(P_t) + \delta K_t + \lambda\big(\nu(\rho_t)Y_{t-1} - K_t\big)}{1 - \mathrm{AMPC}(s_{L,t})}. \tag{55}$$

Capital evolves according to (44).

Impact. An AGI shock at $t = 0$ lowers $s_{L,0}$ (and typically P_0). The immediate effect is a drop in $\mathrm{AMPC}(s_{L,0})$ and hence a smaller multiplier $1/(1 - \mathrm{AMPC})$. Because $\kappa_0(P)$ is bounded, the price-driven increase in baseline consumption cannot generally offset the reduction in the multiplier. Output falls on impact.

Propagation. Once Y_0 is low, expected demand $Y_1^e = Y_0$ is also low. Firms revise down their desired capital stock $K_1^* = \nu(\rho_1)Y_0$. If the economy is at (or near) the effective lower bound $\rho_t = \underline{\rho}$, policy cannot lower ρ enough to raise $\nu(\rho)$ and offset weak expected demand. Investment therefore falls, possibly becoming negative, so K_1 declines. Lower capital (and the continued low $s_{L,t}$) reinforce weak demand and keep output depressed. This is the multiplier–accelerator interaction: weak demand lowers investment; lower investment lowers demand; the economy contracts until it reaches a low-demand steady state.

3.5 Steady state and persistence

Consider a stationary post-AGI regime with constant (P, s_L, ρ) and consistent expectations ($Y_t = Y_{t-1} = Y$). In steady state, $K = \nu(\rho)Y$ and $I = \delta K = \delta\nu(\rho)Y$. Substituting into the goods market yields

$$Y = \frac{\kappa_0(P)}{1 - \mathrm{AMPC}(s_L) - \delta\nu(\rho)}. \tag{56}$$

Relative to the one-period model, the denominator now includes an endogenous investment term. The key comparative statics are immediate:

- A fall in s_L lowers $\mathrm{AMPC}(s_L)$, increasing leakages and reducing the multiplier.

- A fall in P can increase $\kappa_0(P)$, but this increase is bounded by satiation.
- If ρ is constrained by (52), then $\nu(\rho)$ cannot rise enough to absorb the increased saving implied by a low AMPC(s_L), so the economy settles at a low Y and a low $K = \nu(\rho)Y$.

Finally, note that in this stationary setup the AGI shock is primarily a *level* shift: output can experience negative growth rates during the transition (as K_t decumulates), even if the long-run growth rate is zero once the new steady state is reached.

3.6 Dynamic calibration and capital obsolescence

We illustrate with a stylized calibration in *real* units. Choose MPC parameters consistent with the first section:

$$\kappa_{1,Z} = 0.9, \qquad \kappa_{1,O} = 0.2.$$

Let depreciation be $\delta = 0.05$, and suppose that at the effective lower bound the economy can sustain a capital–output ratio $\nu(\underline{\rho}) = 3$ (equivalently, a maintenance investment share $\delta\nu = 0.15$).

Pre-AGI. Let $s_L = 0.6$, so

$$\text{AMPC}(s_L) = 0.2 + (0.9 - 0.2) \cdot 0.6 = 0.62.$$

Set the baseline term at the pre-AGI price level to $\kappa_0(P) = 23$, which implies a pre-AGI steady state of $Y = 100$ via (56):

$$Y = \frac{23}{1 - 0.62 - 0.15} = \frac{23}{0.23} = 100.$$

Then $K = \nu Y = 300$ and $I = \delta K = 15$.

Post-AGI. Let AGI reduce the wage share to a small but nonzero value, $s_L' = 0.05$, consistent with a small residual labor-using sector:

$$\text{AMPC}(s_L') = 0.2 + (0.9 - 0.2) \cdot 0.05 = 0.235.$$

If prices fall, $\kappa_0(P)$ may rise somewhat; to keep the arithmetic transparent (and conservative about the price channel), hold $\kappa_0(P)$ fixed at 23. Then (56) implies

$$Y' = \frac{23}{1 - 0.235 - 0.15} = \frac{23}{0.615} \approx 37.4,$$

so output falls by roughly 63%, and the capital stock converges to $K' = \nu Y' \approx 112$.

Interpreting the "natural rate". If one asks what it would take to sustain $\bar{Y} = 100$ after AGI without transfers, (54) implies a required investment share of

$$\delta\nu(\rho^*) = 1 - \text{AMPC}(s'_L) - \frac{\kappa_0(P)}{\bar{Y}} = 1 - 0.235 - 0.23 = 0.535,$$

i.e., $\nu(\rho^*) \approx 10.7$ with $\delta = 0.05$. Absent an enormous expansion of profitable investment opportunities (or a very large fall in the feasible real interest rate), the economy cannot absorb the increased saving at full employment; output must fall until goods-market demand is consistent with the feasible ρ and the implied $\nu(\rho)$.

Stranded assets and obsolescence. The transition can be sharper if AGI renders part of the existing capital stock obsolete (e.g., office structures complementary to human labor). This can be captured by a temporary rise in effective depreciation (or a one-time write-down) following the shock, accelerating the decline in K_t and reinforcing the contraction in Y_t during the adjustment path.