

The Ketchup Bottle, the Microphone, and Your Spreadsheet

Why good businesses whiplash between too much and too little — and the two lines in your own numbers that decide whether it happens to you.

Two months you already know

Think of your worst kind of month. For some owners it's the **buried month**: stock stacked in the back room, cash locked in boxes nobody is buying, a markdown weekend to make it all go away. For others it's the **empty month**: bare shelves, customers asking for what you don't have, then walking out to buy it somewhere else.

Here is the strange part, and the reason this paper exists: those are usually not two different problems. They are one problem, photographed at two moments. You order big to catch up → the stock lands just as the rush fades → buried, you slam the brakes on ordering → customers return to empty shelves → you panic-order even bigger. Each fix causes the next problem. Owners blame luck, suppliers, the economy, themselves. It is usually none of those. It is a loop — and loops can be measured.

The ketchup bottle

Why do smart, careful people fall into that loop? Because of something you've felt since you were a kid, holding a glass ketchup bottle over a plate of fries. You tip it. Nothing. You shake it. Nothing. You smack the bottom — once, twice — and then everything arrives at once and half the bottle is on your plate. You didn't want a flood. You got one because there was a delay between what you did and what came out — and while you waited, you kept adding force.

A business order is a ketchup bottle with invoices. The stock arriving today answers a decision you made weeks or months ago, and the sales report you steer by describes months that are already over. A rush hits, shelves look thin, you tip the bottle: nothing yet — so you order more; still thin — more. Then everything lands together, right as the rush cools, and your plate is flooded. So you swear off ordering... and six weeks later the shelves are bare. The delay did that, not carelessness. Every business that orders ahead of demand is holding this bottle. The only question is how hard you shake it.

The microphone

Every business lives with delay; what decides your fate is whether your corrections die down or build up. Picture a microphone in a school gym, near its own speaker. At a distance, all is well: sound loops back a little quieter each pass and fades away. Slide the mic closer, and at some exact spot — a real, physical line on the floor — each pass comes back louder than the last, and the whole gym squeals. Nobody turned anything up. The microphone crossed a line.

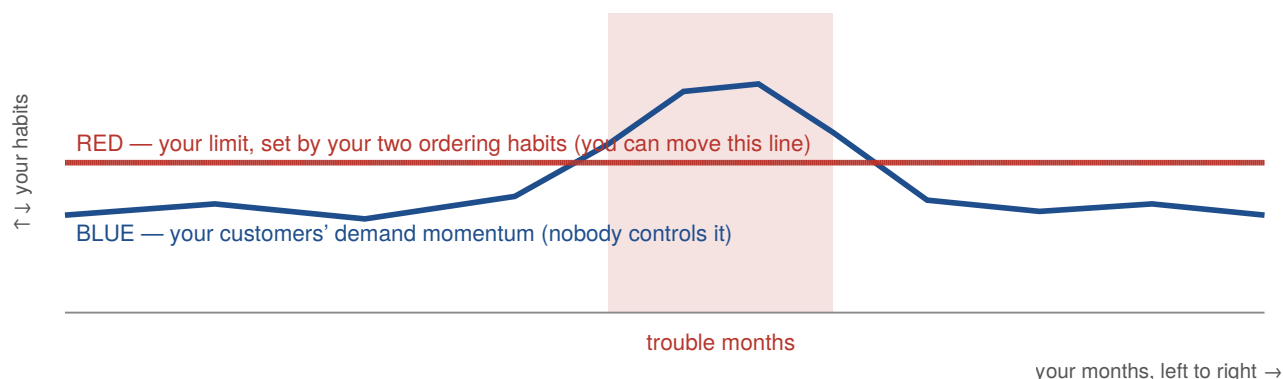
Your ordering habits stand somewhere on that gym floor. On the safe side of the line, a bad month gets corrected and the correction settles — you never even notice how close you were. Past the line, every correction feeds the next problem, and you get the loop from the top of this page: flood, famine, flood. Same owner, same effort, same supplier — the only difference is which side of the line your habits were standing on when a rush arrived.

The claim this whole project stands on: that line is not a metaphor. It is a number, it can be computed from your own sales history, and you can move it.

Seeing it: two lines on one chart

Here is what the microphone's line looks like when we draw it for a business. Put your months along the bottom. The blue line is how strong your customers' demand momentum was in each stretch of your history — how much a busy

month tended to pull another busy month behind it. The red line is how much of that momentum your ordering habits could absorb before your corrections started feeding on themselves. Wherever blue climbed above red, the gym squealed:



A rush arrives (blue climbs). Habits that were fine in calm months are suddenly past their limit, every correction feeds the next problem, and the shaded stretch is where the pile-ups, the markdowns, and the panic orders lived. The rush fades, blue drops back under red, and life quietly returns to normal — with the owner never knowing a line was crossed, only that it was “a rough year.”

YOUR TWO LINES — AND HOW ONE SPREADSHEET REVEALS THEM

Blue belongs to your customers. Red belongs to you.

Look at the chart again, because its two lines split the world cleanly. Blue — word of mouth, a trend, a rush — is real, it rises and falls, and nobody controls it, including you. Red is different, and it is the best news in this paper: your red line is set by just two habits of yours — how much of a gap you fix at once (the whole shortfall in one go, or half now and reassess?), and how far back you look when deciding (last month, or the whole year?). Change those two habits and the red line itself moves up or down. It is the only line you control — and most owners have never seen theirs.

One rule: keep the blue line below your red line.

Hand it your history; it tells your story back

The free page asks for one small file — a row per month: date, sales, and inventory if you track it. Three years minimum, four or more if your business has seasons, and as far back as you have beyond that. (One reassurance at the moment you choose your file, then we'll drop it: the free diagnostic reads your file right in your browser — your numbers stay yours.)

It measures your blue line across your whole history, draws your red line from two quick questions about your habits, and shades every stretch where blue crossed red: your **trouble months**, with dates. It opens with what it found — the verdict, those stretches, the cash that sat above your usual stock level, and the one change that would have avoided it — and everything under that box is the evidence for it, in three charts: **A**, what happened; **B**, why; **C**, the arithmetic checked against your own months. That moment decides whether you believe any of this. Do the shaded months match your scars — the surprise pile-up, the markdown weekend, the emergency re-orders? If the page finds the months you still wince about, without being told, you're not looking at a theory anymore. You're looking at your own loop, caught on camera.

It also says what it can't see. Months where your numbers were mid-jump to a new level get an orange “grain of salt” mark — measuring momentum mid-jump is like reading a bathroom scale while you're still bouncing on it. A shutdown in your history gets walled off, and the page says so, rather than letting closed months poison the meaning of

“usual.” And if your business has loud seasons, it notices from your own file — no industry assumptions — and grades each month against your typical version of that same month, the way a doctor grades a child’s height against kids the same age, not against all humans. A swimwear shop and a winter-coat shop get opposite corrections automatically, because their own Decembers say so.

Then comes the part owners replay over and over: the **what-if**. One click redraws your entire past under different habits — gentler orders, a shorter look-back — and you watch your red line rise and your trouble months shrink on the history you actually lived. Not a forecast; a what-if on your own history, answered by your own numbers.

And the sudden months get their own hearing. A vendor on allocation, a stockout, a one-off buy: the page finds any one-month jump on its own, marks it, and then does something the slow reading can’t — on **Chart C** it takes your real stock position that month and runs the arithmetic forward twice, once under your habit and once under a gentler one, and lays both against what your shelf actually did in the year after. That is the one place the theory can be checked against your own history in plain sight: if the shelf really did swing the other way after the shock, by about the amount the arithmetic said it would, you are not looking at a story anymore.

| When the wave itself pays you

One more thing hides in your history. A busy Saturday is a **splash** — loud, then gone. A **tide** sits higher every time you look: demand meaningfully above your own usual, month after month, with momentum behind it. The diagnostic marks those stretches in green: moments a modest price raise was fairly on the table — justified by a real tide, not a spike, and not your calendar (a December that is merely your usual December opens no window). Inside a real tide, a small raise does two jobs at once: the wave pays you, and it gently slows the stampede itself — fewer frantic catch-up orders, a smaller stock mountain when the tide goes out.

Green means the door was open — never a claim about how much walking through it would have paid. And the reverse: a lasting demand drop earns “go investigate — what changed?”, never a knee-jerk discount, which made things worse in every scenario tested.

STAYING UNDER THE LINE — AND WHY WATCHING IS THE WHOLE GAME

| Three ways to live with the bottle

Know your lines, and there are three real strategies. Each one works. And each one carries a heavy cost that mostly stays invisible — which is exactly why owners argue about them forever.

Strategy one: hold the line high, always. Gentle half-step orders and a short look-back, every month, forever — a red line so high that no realistic wave crosses it. The visible part is peace of mind. The unseen part is the bill: permanent extra safety stock, and stock is never free. The cash in those boxes can’t buy anything else — not the new fixture, not the better location, not your own salary in a thin month — and on top of the trapped cash come storage, insurance, spoilage, breakage, and styles going stale: costs commonly estimated at 15–30% of the stock’s value every year. When someone says “just keep high inventory,” this is what they are actually prescribing: a permanent tax, paid monthly, for a storm that comes occasionally.

Strategy two: storm shutters. Run lean, efficient habits in calm weather; switch to half-steps only when momentum climbs. On paper this is the cheapest strategy by far — you only pay for protection during storms. The unseen cost is the watching itself, and it cuts both ways. Miss the storm — because you were busy running the business, because the sales report looked fine (remember: it describes months already over) — and you meet the wave with your most fragile habits, whiplash arriving exactly when it hurts most. Or jump at every splash — treat one loud Saturday as a tide — and you flip-flop your ordering constantly, panic-buying protection you didn’t need, which is its own little loop. Shutters are cheap; a reliable weather service is the part nobody prices in.

Strategy three: the price lever. Inside a real tide, with capacity stretched thin, a modest raise is the one gentle influence you have on the blue line itself — the wave pays you while it slows the stampede. The unseen cost is timing risk, and it is brutal: raise into a splash and the splash ends a month later, leaving you the shop that hiked prices right before demand fell — customers remember the raise long after they’ve forgotten the rush. Raise because December is busy — when December is merely your usual December — and you’ve taxed your own calendar. The lever is real, but pulled at the wrong moment it converts a temporary wave into a permanent customer problem.

Three valid strategies; three heavy, mostly invisible price tags. Notice what all three demand. Not brilliance, not luck — the same single input: knowing where your two lines are, every month, and knowing whether a rise in blue is a tide or a splash. Miss that input, and the best strategy on paper is just the loop with extra steps.

The catch — and what comes next

The free page reads your past — every wave that already hit you — for one product. What it cannot tell you is whether the loop it found on that product runs across everything you carry, and that matters, because averages are where dying products hide: twenty items up a little, one quietly bleeding out, the total smiling the whole time. Read product by product, the same history points at the one item that has been sinking for months and at the quiet riser that deserves its shelf space. The lagging truth isn’t only when something changed. It’s which thing.

What this page can’t do is watch the present. The version being built connects to a point-of-sale or QuickBooks — or takes the same monthly file by email — and sends one short note a month: where the lines sit, and a heads-up when a trigger fires or the numbers drift toward the danger zone. A replay of the past tells you what happened; that one is meant to tell you what’s happening, while there’s still room to act.

WHERE THIS STANDS — AND HOW WE TRIED TO BREAK IT

Why nothing else answers this question

Every inventory tool on the market answers the same question — what should I order? — by counting stock, forecasting sales, or automating the purchase order. And most of that automation runs on trailing averages of recent months: the very look-back habit that sets a red line low. Such a tool holds the ketchup bottle for you, and many shake it the same way, just faster and with more confidence.

The expensive end knows this loop well — supply-chain scientists named the flood-and-famine whiplash the bullwhip effect decades ago — and the million-dollar suites fight it the enterprise way, by taking the ordering away from people entirely. But notice the question none of them answer: not “what should I order?” but “is my own ordering rule stable — and is this wave real enough to act on?” That question comes from control theory — the mathematics that keeps autopilots level and power grids from oscillating. We took that mathematics, solved it for the two habits every owner actually has, and published the answer as a single line anyone can check. As far as we know, nothing else — at any price — hands an owner their own stability line. This replaces none of those tools; keep your stock tracker if you like it.

How we tried to break it before you ever saw it

A measurement you should trust is one that has been attacked by its own makers, so before this page reached you, we attacked ours. We rolled the engine forward through thirty-four years of U.S. government data — seventeen industries, always predicting with only what was available at the time, then grading against what came after — and it held up out of sample. With no hints, it marked the 2008 bust where it landed: wholesale parts from December 2008, durable manufacturing through the spring of 2009; and in building materials it came within five percent of the line in December 2008 and never over — which is what a trade that bent but did not whip should look like. It marked May 2020 in three of four industries as the single hardest month on record. And where the paper said in advance the theory should find nothing — ranking which industries COVID would hurt most, a shutdown rather than a loop — it found

nothing, which was the registered result. A later test on the retail series exposed a genuine blind spot — loud seasonal rhythms can drown the momentum reading — so we built the per-business eye exam described above and validated the fix against the government’s own professionally de-seasoned versions of the same data: a built-in answer key.

Two notes: industry-wide data is gentler than a single shop’s — which is exactly why real businesses need to test this bridge before anyone should lean on it. And the mathematics itself never asks for trust: every time the diagnostic page loads, it checks its own math against the published paper — and refuses to run if the check ever fails.

What it will never do

It will not forecast your sales, will not tell you what to buy or sell, and will not pretend to certainty it doesn’t have: thin history gets a “can’t say,” strange months get the grain of salt, and even a clean verdict carries a footnote — a wave bigger than any in your history could still reach a line your history never touched. It describes your numbers’ dynamics; the decisions stay yours. And the math behind it all — the red line, the momentum reading, the price windows — is published research: a paper called [The Escalation Cost](#), linked with its data and code at [LaggingTruth.com](#), because a tool about not trusting delayed signals should never ask for blind trust in itself.

Run it on one product first — the free page on this site does that in your browser, with nothing sent anywhere. You can also run it there without a file at all, on a whole industry: the US Census figures for every business of that kind, 1992 to now, through the same arithmetic. Run it on your own history the same way — the page that reads your file carries no analytics at all, and works with your internet disconnected.

About this document — please actually read this part. This paper is educational. It explains a measurement. Nothing in it is financial, investment, legal, tax, or accounting advice, and reading it creates no advisor–client relationship of any kind. The diagnostic measures mathematical properties of the historical data you provide: they describe how your past numbers behaved. The future is under no obligation to resemble your past — a pattern that held for years can break tomorrow, and no measurement of history can promise what next month will do. Every business decision discussed here — ordering, inventory levels, staffing, and especially pricing — remains entirely yours, and consequential decisions deserve advice from qualified professionals who know your specific situation. On pricing in particular: raising prices can be restricted by law in some circumstances (for example, during declared emergencies in many U.S. states), and can carry contract, lease, or marketplace-policy consequences; check your obligations before acting on any pricing observation, including the “window” markings described above, which are observations about demand persistence in your own historical data and nothing more.

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