MCP SERVER | NO CODE | CLOUD HOSTED

Inflation Erosion Calculator MCP for AI Agents

Modeling Purchasing Power Decay Over Time and Retirement Planning

The Inflation Erosion Calculator helps you track how inflation slowly drains your money's real value over time. It projects an initial sum's purchasing power decay year by year, giving you a clear view of the 'hidden tax.' You can quickly find out what amount needed today will actually buy in 20 years.

A+ Quality Score 100/100

inflation | purchasing-power | finance-tools | economic-modeling | wealth-protection

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vinkius.com/mcp/inflation-erosion-calculator

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Inflation Erosion Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Inflation quietly works against your savings. This MCP lets you model that loss directly, showing how an initial investment's purchasing power shrinks over time due to inflation rates. Instead of guessing, you get a clear picture of the decay. You can run detailed projections to see exactly how much value is lost annually or compare different economic futures to understand your risk exposure. When you connect this MCP via Vinkius, your AI client uses these tools to give you immediate answers on long-term financial planning, helping you quantify inflation's impact.

Core Capabilities

01 — Compare Inflation Scenarios

Run side-by-side comparisons of how different assumed inflation rates affect your wealth over decades.

02 — Calculate Annual Erosion Schedule

Generate a detailed, year-by-year breakdown showing exactly how much purchasing power is lost each year.

03 — Determine Total Loss Percentage

Pinpoint the total percentage of value that will be lost to inflation over an entire specified time frame.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/inflation-erosion-calculator** — connect your AI agent in three steps.

01 You input your starting amount, the number of years you're planning for, and the expected annual inflation rate.

02 Your AI client runs the calculation, projecting how that initial sum degrades year by year based on the provided economic assumptions.

03 It returns a detailed report showing the real purchasing power remaining at different time points, along with total loss metrics.

The bottom line is: you get a concrete number showing your money's true future value, not just a nominal figure.

Built For

Anyone planning for the long haul needs this. Financial planners use it to stress-test retirement funds. Investors need it to know if their portfolio strategy accounts for rising costs. Budgeting individuals rely on it to understand how much more they'll need in 15 years just to maintain their current lifestyle.

Financial Advisor

They use this MCP to run client scenarios, comparing various inflation rates (like moderate vs. high) to show clients the true impact on retirement savings.

Retirement Planner

You plug in your current savings goals and expected lifespan to find out how much purchasing power you'll actually have when you need it most.

Investment Analyst

You assess different asset classes against multiple inflation rates to determine which strategies best protect capital over decades.

What Changes When You Connect

01 Stop guessing about future dollars. You get a precise calculation of your initial investment's real purchasing power after decades.

02 Quickly understand the cost difference between two economic futures by using `compare_inflation_scenarios`, letting you stress-test your budget against risk.

03 Avoid annual panic attacks on your savings plan; the `calculate_annual_erosion_schedule` tool maps out exactly how much value drops every single year.

04 Get a crystal-clear number of total loss percentage. This helps you quantify that 'hidden tax' inflation hits your money with, preventing surprises later.

05 You can run complex scenarios without needing an economist; just tell your agent the variables and get the results immediately.

Real-World Applications

Retiring in 20 Years

A user needs to know if their current savings will cover a comfortable lifestyle decades from now. They ask their agent, which uses `calculate_annual_erosion_schedule`, and instantly sees that they need a much higher starting principal than they thought.

Comparing Investment Strategies

An investor is debating between two asset classes—one historically stable but low-yield, the other high-growth but volatile. They ask their agent to `compare_inflation_scenarios` using both's expected inflation rates.

Budgeting for Major Purchases

A family wants to buy a home in 15 years and needs to know how much the down payment goal will erode. The agent uses `calculate_total_erosion_percentage` to show them the real cost increase.

Understanding Inflation Risk

A client is worried about high inflation rates eating their savings. They ask the MCP to model a 6% vs. 3% scenario, letting them see the massive gap in purchasing power using `compare_inflation_scenarios`.

Patterns to Avoid

Using simple percentage loss

✗ AVOID

Calculating that $10,000 minus 3% is $9,700 and calling it a day. This ignores the compounding effect of inflation over time.

✓ INSTEAD

Don't stop at the first calculation. Use `calculate_annual_erosion_schedule` to track the decline year by year, which shows the true, compounded loss.

Ignoring different economic rates

✗ AVOID

Running a projection assuming only 2% inflation when your region's average is closer to 4.5%. This leads to dangerously inaccurate planning.

✓ INSTEAD

You must `compare_inflation_scenarios` using several realistic rate assumptions (low, medium, high) so you know your plan survives multiple economic realities.

Focusing only on the total loss

✗ AVOID

Only asking for the final percentage lost without knowing *when* that loss occurs. You miss key breakpoints in your savings timeline.

✓ INSTEAD

Always run `calculate_annual_erosion_schedule` first. Seeing the yearly breakdown helps you adjust contributions when the decay rate accelerates.

The Right Fit

Use this MCP if your primary concern is quantifying long-term purchasing power loss or stress-testing savings goals against varying inflation rates. If you need to know what a lump sum of money will buy in 20 years, this tool is perfect. Don't use it if you are only comparing two fixed interest rates on short-term loans; standard financial calculators handle that fine. Also, don't run complex tax modeling here—this MCP focuses purely on economic erosion. Stick to the inputs: initial principal, time horizon, and inflation rate(s).

Inflation Erosion Calculator for AI Agents: Quantifying Purchasing Power Decay

Most people manually calculate financial projections by doing simple subtractions. They assume that if their money shrinks 3% each year, they just subtract 3% from the original amount and call it a day. This approach completely ignores compounding; it doesn't account for how inflation eats away at your diminishing remaining value.

With this MCP, your agent handles the complexity. You give it your starting capital and time frame. It returns not just one number, but a full annual schedule showing exactly what that money can buy every single year of your planning period.

Inflation Erosion Calculator for AI Agents: Stress-Testing Retirement Savings

Traditionally, retirement modeling assumes a fixed, gentle decline in costs. This manual process fails when economic reality shifts—what if inflation spikes? Planners are forced to run multiple models manually, comparing scenarios that feel disconnected and overwhelming.

The Inflation Erosion Calculator fixes this by letting your agent compare multiple rates simultaneously. You get an instant, comprehensive view of how far apart two different financial futures can pull you, making your planning robust.

3 Inflation Erosion Calculator Tools for Analyzing Wealth Decay

Use these tools to model, compare, and quantify the exact percentage of value lost due to inflation over time.

#	TOOL	DESCRIPTION
01	`compare_inflation_scenarios`	Shows how two or more different assumed inflation rates impact your long-term wealth differently.
02	`calculate_annual_erosion_schedule`	Provides a clear, year-by-year breakdown of how an initial sum loses its effectiveness over time.
03	`calculate_total_erosion_percentage`	Identifies the total percentage lost to inflation at the end of any given timeframe.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U If I have $10,000 and inflation is 3% annually, how much will it be worth in 10 years?

In 10 years, your $10,000 will have a real purchasing power of approximately $7,440.94, meaning you will have lost about 25.59% of your value to inflation.

U Show me a year-by-year breakdown for $1,000 at 5% inflation over 3 years.

YEAR	NOMINAL AMOUNT	REAL PURCHASING POWER	VALUE LOST
0	$1,000.00	$1,000.00	$0.00
1	$1,000.00	$952.38	$47.62
2	$1,000.00	$907.03	$92.97
3	$1,000.00	$863.84	$136.16

U Compare 2% inflation vs 7% inflation for a $5,000 investment over 20 years.

At 2% inflation, your final real value is $3,364.86. At 7% inflation, it drops to $1,292.09. The purchasing power gap between the two scenarios is $2,072.77.

Frequently Asked Questions

01 **How does the Inflation Erosion Calculator help me plan for retirement?**

The calculator shows you your money's true value decades from now, not just what it will be worth nominally. It helps determine how large of a nest egg you actually need to maintain today's lifestyle in retirement.

02 **Can I compare different inflation rates using the Inflation Erosion Calculator?**

Yes. You can use the comparison tool to model several economic scenarios (e.g., low, medium, and high inflation). This shows you your financial plan's risk profile under different market conditions.

03 **What is the difference between nominal amount and real purchasing power?**

The nominal amount is the dollar figure written on the check. The real purchasing power is what that money can actually buy in terms of today's goods and services, accounting for inflation.

04 **Does this tool help me understand how long my savings will last?**

By calculating the annual erosion schedule, you can track when your spending rate exceeds your money’s real purchasing power. This helps you identify funding gaps years in advance.

05 **Is inflation a constant factor I need to worry about with this MCP?**

Inflation is the single biggest long-term threat to savings. Using the Inflation Erosion Calculator ensures that inflation remains a key variable, so you don't underestimate the decay of your capital.

06 **How does the calculator determine inflation loss?**

It uses a compounding formula where the real value is calculated by dividing the nominal amount by (1 + inflation rate) raised to the power of the number of years elapsed.

07 **Can I compare two different inflation rates?**

Yes, you can use the `compare_inflation_scenarios` tool to see the difference in final purchasing power between two distinct annual inflation rates.

08 **What is the ’hidden tax’ mentioned in the tool?**

The 'hidden tax' refers to the total percentage of your money's original purchasing power that has been lost due to rising prices over a specific period.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"inflation-erosion-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Inflation Erosion Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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