THE BETTER POLICY PROJECT

WORKING PAPER SERIES

WORKING PAPER NO.
2026-09

Fiscal Multipliers Galore

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NOVEMBER 2026

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Abstract

Why do fiscal multipliers differ across instruments and countries? We compare seven standardized fiscal easings in GIMF across 59 model variants covering different countries and regions, with an overlapping euro-area aggregate reported as an additional comparator. The revised main calibration harmonizes nominal wage and price adjustment costs in every model region. This removes a substantial inherited source of inflation heterogeneity: earlier headline-inflation comparisons showed that the first-year headline-inflation responses to government consumption in Italy, France and Spain fell by roughly three-quarters relative to the previous calibration. This revision reports GDP-deflator inflation and compares it with headline inflation to assess measurement effects. Median first-year GDP responses are 0.98 percent for government investment and 0.79 percent for government consumption under normal monetary policy. Sequential one-year policy-rate holds raise these medians to 1.09 and 0.85 percent. Country rankings still share a strong common factor, but harmonization changes the relative responses and leaves trade, monetary closure and fiscal financing as important subjects for controlled tests. All results are conditional first-order simulations around solved nonlinear steady states.

Keywords: fiscal multipliers; government consumption; public investment; transfers; taxation; monetary policy; international spillovers.

JEL classification: E17, E52, E62, E63, F41.

Acknowledgments. The authors thank Robert (Bob) Ford.

Interpretation: All numerical results are conditional simulations, not empirical causal estimates. The euro-area aggregate overlaps its member-country entries.

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1. Begin with the simplest possible experiment

National income is the sum of private consumption, private investment, government consumption, government investment and net exports:

$$Y = C + I + G_C + G_I + X - M$$

Here **C** is private consumption, **I** is private investment, $\mathbf{G_C}$ is government consumption, $\mathbf{G_I}$ is government investment, **X** is exports and **M** is imports. The distinction between the two types of government expenditure will matter later.

Now suppose the government increases its consumption expenditure by an amount equal to **1 percent of initial GDP**. If private consumption, private investment, government investment, exports and imports do not change, the national-income identity says that real GDP rises by 1 percent. This is a useful *accounting benchmark*, not a forecast or a structural estimate of a multiplier.

The interesting economics begins when we ask: **why would those other components stay unchanged?** The answer is that they generally will not. In fact, the fiscal multiplier is a summary of all the changes that follow the initial government decision. This is the central message of the structural-model comparison by Coenen et al. (2012): the fiscal instrument and the policy environment must be specified before a multiplier has meaning.

2. Government consumption: why the multiplier differs from one

First, some spending leaks into imports

Government demand is not necessarily demand for domestically produced value added. Some purchases are imported directly, and domestic suppliers may use imported inputs. To the extent that the extra expenditure raises imports, the positive contribution from government consumption is partly offset by the negative contribution from imports. Other things equal, this pushes the domestic GDP response below the accounting benchmark. The size of the leakage depends on the composition of purchases and the openness of the economy.

Second, private spending does not stand still

Higher government demand can raise employment, incomes and confidence, encouraging private consumption. Firms may invest more if they expect stronger sales. These effects reinforce the initial expansion and can push the response upward. But the government also competes with private users for labour, capital and productive capacity. Wages and prices may rise; households may save in anticipation of future taxes; and higher real borrowing costs may discourage consumption and investment. Those effects work in the opposite direction.

Third, what does the central bank do?

This is often the decisive question. If government demand raises inflation and the central bank increases nominal interest rates sufficiently, real interest rates can rise and private demand may be crowded out. The central bank is then *leaning against* the fiscal expansion. If it leaves nominal rates unchanged

while expected inflation increases, real interest rates can instead decline, supporting private spending. Monetary policy is then more accommodating. An unchanged nominal policy rate is not the same as an unchanged real interest rate.

Exchange rates matter as well. A monetary tightening or higher domestic real rates can appreciate the currency, weakening exports and encouraging imports. With a flexible exchange rate, some of the fiscal impulse can therefore be displaced into net exports. With a fixed exchange rate or common currency, the adjustment follows a different path.

Conclusion: the government-consumption multiplier is not an immutable number. It depends on import content, private-sector responses, capacity constraints, exchange-rate arrangements, expectations and, above all, the monetary policy reaction.

3. Government investment: the same demand impulse, plus productive capital

Government investment initially enters the GDP identity in much the same way as government consumption: it purchases goods, construction and services. It therefore faces the same questions about import content, private spending and monetary policy.

The difference is what happens *after* the initial expenditure. A well-chosen road, port, electricity network or other productive public asset can reduce costs and raise the productivity of private labour and capital. Firms may then invest more because future returns are higher. Government consumption does not automatically create this additional productive asset.

That does not mean every investment project has a larger short-run multiplier. Public investment may have high imported content, long planning delays, poor execution or limited productive value. Its economic advantage depends on efficiency and the services delivered by the new public capital, not simply on whether expenditure is labelled investment.

In the reported simulations, government investment has the highest median first-year GDP response among the seven instruments. That result is consistent with the model's productive-public-capital channel, but should not be treated as a universal ranking for every project or country.

4. Transfers: the government gives money rather than buying output

A transfer does not directly purchase a unit of current production. It increases a household's disposable resources. GDP rises only to the extent that the recipient changes spending or labour-market decisions and that additional spending falls on domestic output. This is why transfers generally have a smaller immediate effect than direct government purchases.

General transfers

Households with ample savings or access to credit may spend only a small part of an additional transfer today and spread the rest over future years. Some may save it to meet anticipated future taxes. The immediate GDP response is therefore limited by the share spent now, the import content of that spending and the monetary response.

Targeted transfers

A transfer directed toward households with limited liquidity or low incomes can have a stronger immediate effect because those households tend to have a higher *marginal propensity to consume* (MPC): they spend more of each additional unit of disposable income. The difference between targeted and general transfers is therefore fundamentally about who receives the money and when they spend it.

Even when a household spends the entire transfer, the amount does not translate one-for-one into domestic GDP. Purchases may include imports, and consumer spending includes indirect taxes such as VAT. The tax-inclusive amount paid by the household differs from the value of goods and services before tax; the tax revenue also feeds back into the government budget. The full GDP response depends on the economic incidence and subsequent use of that revenue, not simply on the gross transfer.

The model results show a higher median first-year response for targeted than for general transfers. This is economically intuitive, although the source model's general-transfer implementation contains residual-budget features that warrant caution in making a purely structural comparison.

5. Three tax instruments: why each operates differently

A cut in consumption taxes (VAT)

A temporary VAT reduction lowers the tax-inclusive price of consumption, if passed through to consumers. It can encourage households to bring purchases forward while the tax rate is low, especially for durable goods. The response depends on pass-through, the timing of the tax change, households' ability to shift purchases and the share spent on imports. Unlike a direct government purchase, a VAT cut acts through the household's spending decision. A future reversal can also pull spending out of later years.

A cut in labour income taxes

Lower labour taxes raise the after-tax reward to work and can increase labour supply. Depending on wage bargaining and price setting, they may also reduce firms' effective labour costs and inflation pressure. The immediate demand stimulus can be modest, while the supply-side effect builds through employment and real wages. Importantly, if inflation falls, a central bank following its normal rule may *cut* interest rates. Holding the policy rate fixed could then make the labour-tax cut *less* expansionary than under the normal monetary rule.

A cut in capital income taxes

Lower capital taxes can increase the after-tax return on investment and reduce the user cost of capital. Firms may respond by expanding investment, but capital takes time to plan and install. The initial GDP response may therefore be smaller than the eventual supply effect. Its size depends on the expected duration of the tax change, the tax base, financing, international capital mobility and the monetary reaction.

The three tax instruments should not be treated as interchangeable. VAT affects the timing and price of consumption; labour taxation affects work incentives and costs; capital taxation affects investment incentives and the future capital stock. Their multipliers need not have the same sign, size or time profile in every policy environment.

6. What do the revised simulations show?

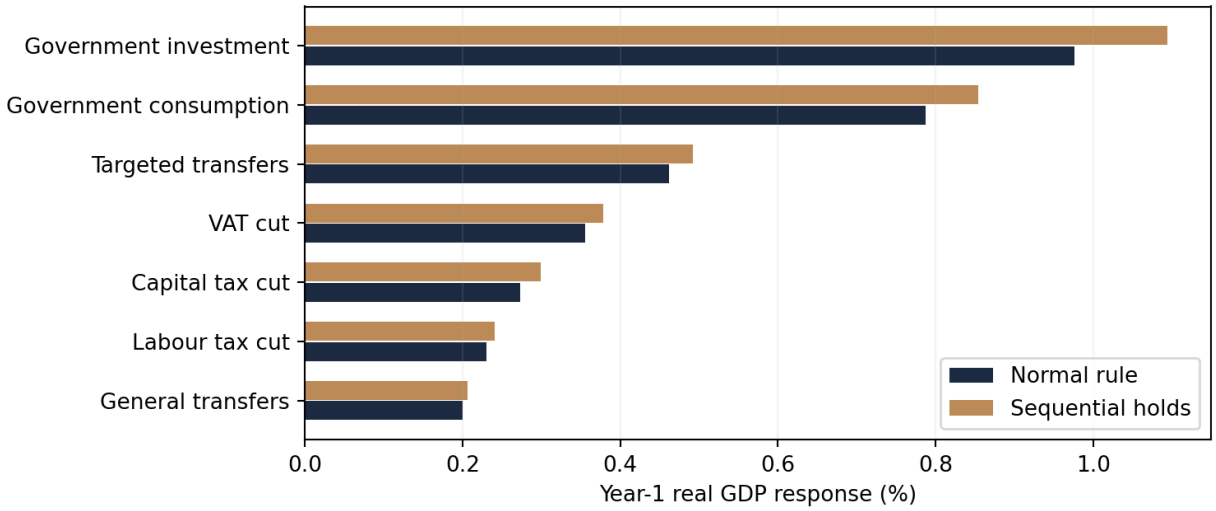
Each intervention is normalized ex ante to 1 percent of baseline GDP in each of Years 1 and 2. The fiscal path is anticipated from the outset. The revised main results use the harmonized nominal adjustment costs documented below; they replace the previous calibration in the main tables and figures. Table 1 reports unweighted medians across all 60 model entries. A Year-2 response is an annual GDP level deviation, not a cumulative multiplier.

Table 1: Median year-1 GDP response by fiscal instrument

Fiscal instrument	Normal rule	Sequential holds
Government investment	0.98	1.09
Government consumption	0.79	0.85
Targeted transfers	0.46	0.49
VAT cut	0.36	0.38
Capital tax cut	0.27	0.30
Labour tax cut	0.23	0.24
General transfers	0.20	0.21

Notes: Year-1 GDP percent deviations. The euro-area aggregate overlaps its member entries.

Figure 1: Harmonized-calibration first-year GDP medians



Notes: Values reproduce Table 1.

Government investment remains the largest median response, followed by government consumption and targeted transfers. These rankings summarize the standardized model experiments; they are not universal rankings of real-world projects. General transfers retain residual-budget features, and tax cuts are normalized on baseline tax bases rather than endogenous revenue losses.

7. Monetary policy can amplify or offset the fiscal action

For government consumption, the median first-year GDP response rises from 0.79 percent under the normal rule to 0.85 percent under sequential rate holds. The second-year response rises from 0.73 to 0.89 percent (Table 2).

Table 2: Government consumption: median responses under the two monetary arrangements

Policy arrangement	GDP Y1	GDP Y2	GDP defl. inf. Y1	GDP defl. inf. Y2
Normal rule	0.79	0.73	0.08	0.06
Sequential holds	0.85	0.89	0.07	0.07

Notes: GDP in percent; GDP-deflator inflation in percentage points. Each median is calculated separately.

The median labour-tax GDP response is now 0.23 percent under the normal rule and 0.24 percent under sequential holds. A labour-tax cut can still reduce inflation and induce monetary easing in individual cases; the revised medians do not establish that channel as the dominant aggregate outcome. Accommodation must be assessed relative to the inflation and policy response of each experiment.

The sequential experiment holds rates in Year 1; at the beginning of Year 2 a further one-year hold is decided unexpectedly. It is not an advance two-year commitment. The realized first-year solution is frozen when solving the second policy vintage.

8. Why country and euro-area multipliers differ

Trade leakage, household balance sheets, production structure and monetary arrangements remain relevant after nominal adjustment costs are harmonized. A purchase imported from another euro-area member is an import for the national economy but remains production inside the area-wide aggregate. The ECB responds to area-wide inflation rather than the inflation response of one member.

For government consumption, the euro-area first-year GDP response is 0.94 percent under the normal rule and 1.01 percent under sequential holds. Germany records 0.90 and 0.91 percent respectively. These comparisons illustrate the trade boundary and policy closure, but do not isolate their separate causal contributions.

Applying a common adjustment-cost profile does not make all price-setting equations identical: markups, indexation, expenditure shares and steady-state structure also affect their slopes. France and Italy retain their special fiscal controls, so fiscal financing remains a comparability limitation.

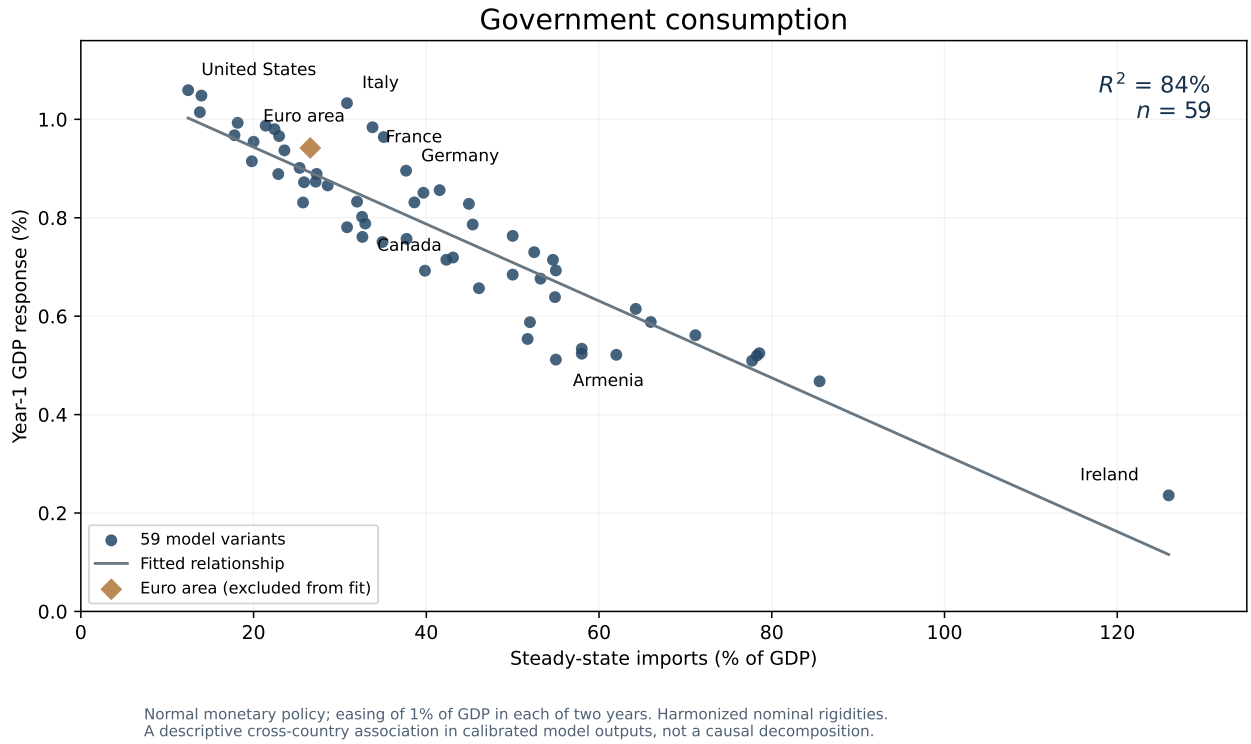
A simple openness diagnostic

A direct first check is to plot each country's first-year GDP response against its steady-state imports as a share of GDP. The import share is taken from the same saved model calibration as the response, rather than mixing a trade statistic from another vintage. Since the fiscal easing is normalized to 1 percent of GDP, the first-year percentage GDP response is also the response per unit of that annual fiscal impulse. The announced fiscal intervention lasts two years; this is not an isolated one-year surprise.

$$m_{i,1} = a + b\, s_i + u_i, \qquad s_i = 100 \frac{M_i}{GDP_i}.$$

Here $m_{i,1}$ is the Year-1 GDP response and s_i is the steady-state nominal import share in percentage points. Each regression includes an intercept and is unweighted. The 59 model variants form the fitted sample; the overlapping euro-area aggregate is shown separately.

Figure 2: Year-1 GDP response and imports/GDP: government consumption, normal monetary rule



Notes: Harmonized nominal rigidities. The diamond is the euro-area aggregate, excluded from the fitted relationship.

For government consumption, the fitted relationship has $R^2 = 0.843$: the import share alone fits about 84 percent of the cross-country variation in the first-year GDP response. The Pearson correlation is -0.92, and the rank correlation is also about -0.92. A 10 percentage-point higher import share is associated with a roughly 0.08 percentage-point smaller GDP response.

The relationship is broad across instruments, although its strength varies (Table 3).

Table 3: Openness and first-year GDP responses by instrument

Instrument	Fitted variance (R^2)	Correlation
Government consumption	84%	-0.92
Government investment	73%	-0.86
Targeted transfers	80%	-0.90
General transfers	52%	-0.72
VAT cut	79%	-0.89
Labour tax cut	88%	-0.94
Capital tax cut	75%	-0.86

Notes: First-year GDP responses, normal monetary policy, harmonized calibration; separate regressions across the 59 model variants of each response on imports/GDP and an intercept. Correlations are Pearson coefficients.

Excluding Ireland, the largest import-share observation, leaves the government-consumption fit at about 83 percent. Excluding France and Italy, whose fiscal controls differ from most entries, raises it to about 86 percent. The relationship therefore does not depend on those observations alone. Under the sequential rate-hold experiment the same diagnostic is also computed; both years and policy arrangements are supplied in the accompanying CSV files.

The economic interpretation is import leakage: an economy that imports more of its additional demand tends to retain less of a fiscal impulse in domestic output. But the regression is an association across calibrated model applications. Openness covaries with country size, expenditure composition, monetary arrangements, household structure and other calibration choices. Consequently $R^2 = 0.843$ is not an identified statement that openness causally accounts for 84 percent of each multiplier or each country gap.

The fitted residuals help choose controlled follow-up experiments. Italy, France and Spain have government-consumption responses above the fitted line; Armenia, Georgia and Malaysia are below it. To attribute those differences, vary domestic import intensity within a country, rebalance trade consistently, re-solve the steady state and retain the other parameters and policy rules. The current regression prioritizes that experiment; it does not replace it.

9. What the multiplier does not tell us

A higher short-run multiplier does not establish that a fiscal measure is socially desirable or self-financing. Debt must ultimately be serviced or stabilized. Higher government borrowing may raise equilibrium real interest rates, displace private capital or weaken the external position. If households anticipate future taxes, they may save some of the initial income gain.

A well-designed fiscal package therefore considers the quality of public investment, who receives transfers, tax distortions, the path of debt, and the monetary and exchange-rate environment. In a consolidation, the same mechanisms operate with the signs reversed, but the magnitude need not be symmetric if conditions or constraints differ.

This is the prudent risk-management lesson: do not choose a fiscal instrument on the basis of a single headline multiplier. Ask which risks it addresses, how it is financed, whether it improves future productive

capacity, and what happens if monetary conditions or growth turn out differently from the baseline.

10. GIMF is a large structural model, not a small multiplier equation

The Global Integrated Monetary and Fiscal Model (GIMF) is a multi-country, forward-looking general-equilibrium system. Its size reflects the economic mechanisms it represents, not a desire to produce complexity for its own sake. The household sector includes finite-horizon overlapping generations and liquidity-constrained consumers. Government debt and the anticipation of future taxes therefore matter for consumption and saving, unlike in a simple representative-agent, infinite-horizon benchmark.

Production distinguishes private and public capital, labour, intermediate inputs and different categories of goods. International linkages include bilateral trade flows, imported final and intermediate goods, relative prices, exchange rates and external asset positions. Fiscal instruments have different budget and behavioural effects, while monetary policy and nominal wage and price adjustment influence the timing of real responses. Some variants also incorporate financial-accelerator mechanisms.

These features allow us to study not just the impact on GDP but the consequences for private consumption, investment, labour, inflation, real interest rates, government debt and spillovers across countries. A fiscal expansion in one country can raise activity abroad through trade while also changing global financing conditions.

How large are the systems?

Table 4: Size of documented GIMF implementations

Documented implementation	System size	What is counted
Three-region euro-area GIMF3	1,668	Equations and endogenous variables
Four-region France GIMF4	2,347	Dynamic equations and endogenous variables per date
Seven-region UK framework	Working variant	Separate seven-region calibration; not part of this 60-entry comparison

Notes: Counts are documented for these particular implementations and should not be read as a fixed equation count for every GIMF variant. The four-region France calibration separately reports a larger steady-state calibration system.

Source: BPP euro-area GIMF3 report (7 November 2026); France GIMF4 numerical certification (21 October 2026); UK seven-region fiscal report (7 November 2026).

GIMF can be configured with three, four or more regions. The wider research program includes seven-region variants, allowing more detailed analysis of bilateral trade, monetary unions and international spillovers. The seven-region results are *not* included in the 60-entry fiscal comparison reported here. The number of equations is not a measure of empirical validity: the strength of the model depends on transparent calibration, numerical checks and economically meaningful tests.

Experiment and replication conventions

Each of the seven fiscal easings is normalized ex ante to 1 percent of the origin economy's baseline GDP in each of the first two years. The two-year fiscal path is anticipated from the outset. In the sequential

monetary experiment, the first-year policy-rate hold is anticipated for one year; a further one-year hold is decided unexpectedly at the start of Year 2. The normal rule is expected to resume in Year 3. This is *not* an announced two-year interest-rate commitment.

Reported transitions are first-order approximations around solved nonlinear steady states. The revised main comparison uses the common nominal adjustment-cost profile in Table 5, in every model region. The previous calibration is retained only as a sensitivity reference. Country financing rules are not perfectly identical: some national cases retain special fiscal closures. The 60 reported entries comprise 59 model variants covering different countries and regions, plus an overlapping euro-area aggregate; they must not be added together. GDP responses are percent deviations from baseline and inflation responses are percentage-point deviations.

The revised tables and country plots are generated from newly solved harmonized-calibration paths. The accompanying replication release preserves model inputs, calibration settings, source equations, solver code, 30-year paths, numerical checks and figure-production code. The main inflation measure is now the model-implied GDP deflator, constructed from nominal GDP and the chained Fisher real-GDP index. Tax-inclusive headline consumer-price (CPI) inflation is retained for diagnostic comparisons. The monetary rule continues to use its calibrated underlying PIE inflation block. Re-expressing reported prices therefore does not change monetary policy or the real allocation.

Let g_t denote the source GDP aggregate measured in units of the underlying consumption-price numeraire, P_t^C its price level, and Y_t^F chained real GDP. With common deterministic trend factors cancelling,

$$P_t^D = \frac{P_t^C g_t}{Y_t^F}, \qquad \Pi_t^D = \Pi_t \frac{g_t/g_{t-1}}{G_t^F}.$$

Here G_t^F is the model's Fisher real-GDP growth factor. The reported response is the first-order change in this gross inflation rate, expressed in annual percentage points. Two equivalent price-level and growth calculations are checked.

The source expenditure aggregate is $g_t = P_C C + P_I I + P_G G + X - M$. It excludes the separately imposed consumption-tax wedge. The resulting deflator is on that source valuation basis, not an official market-price GDP deflator including VAT. This matters when comparing it with tax-inclusive headline inflation.

Excluding imports from direct index coverage does not eliminate exchange-rate transmission: export prices, imported inputs and relative-price adjustments still affect domestic value added. A negative response means inflation below baseline; it need not imply a negative inflation rate.

Model access and training are available through **AI-Powered-Learning.org** and the Global Forecasting School; contact Asya Kostanyan or Salome Mkervalidze.

Harmonized nominal adjustment costs

Rotemberg adjustment costs penalize departures of price or wage inflation from its reference process. Schematically, a sector's resource cost contains

$$\mathcal{A}_{j,t} = \frac{\phi_j}{2} Q_{j,t} \left(\frac{\Pi_{j,t}}{\Pi_{j,t-1}^{1-\omega}} - (\Pi^*)^{\omega} \right)^2.$$

This equation illustrates the quadratic cost; the executable equations retain their sector-specific output scales, markups, discounting, trend terms and indexation. A larger ϕ_j generally makes adjustment slower. These coefficients are not counts of months or quarters between price changes.

Table 5: Nominal adjustment costs: previous euro-area settings and the common profile

Adjustment cost	Previous EA	Common profile
Wages	15	216
Tradable producer prices	15	108
Nontradable producer prices	15	108
Investment-goods prices	15	108
Consumption retail prices	15	3.6
Final import prices	15	0.72
Intermediate import prices	15	0.72

Notes: Previous EA refers to the adopted euro-area domestic coefficients, including the earlier 50 percent increase. The common profile uses Canada's adopted domestic settings and applies them in every domestic and foreign region. It does not simply raise every nominal rigidity.

The normal origin-country monetary rule is

$$\Delta \log i_t = 0.5 \left[0.75 \widehat{\log \Pi_t} + 0.25 \widehat{\log \Pi_{t+1}} \right],$$

where hats denote deviations from steady state. For monetary-union members the inflation terms use the source area-wide weights. Other foreign policy rules and fiscal closures retain their inherited settings.

Numerical validation

All 60 entries and seven instruments passed the stacked first-order equation checks. The maximum steady-state residual is 9.90e-10, and the maximum dynamic residual is 1.36e-12. The maximum GDP difference over the first 30 years between 100- and 160-year solutions is 3.51e-04 percentage points. Instrument paths, targeted-transfer allocation, held policy rates, return to the normal rule and monetary-union consistency were checked. Restored source nominal coefficients match the earlier parameter audit before harmonization.

The GDP-deflator price-level and growth calculations agree to a maximum error of 2.09e-16 percentage points. Additional explicit GDP-deflator horizon comparisons are recorded for 35 entries; their maximum first-30-year difference is 8.42e-05 percentage points.

11. Why inflation responses can differ across price measures

The GDP deflator measures the price of domestic value added, while headline consumer-price (CPI) inflation measures tax-inclusive consumption prices. Changing the measure can change the sign of a reported price response without changing GDP, consumption, investment or policy. The reruns reproduce the previously saved macroeconomic paths to numerical precision.

Table 6: Year-1 inflation responses: GDP deflator and headline inflation, normal policy

Instrument	GDP defl.	Headline	Negative GDP defl.	Negative headline
Government investment	0.034	0.086	5	3
Government consumption	0.076	0.036	0	1
Targeted transfers	0.051	0.021	0	6
VAT cut	0.039	-1.447	0	60
Capital tax cut	0.019	0.015	1	6
Labour tax cut	0.008	0.007	15	10
General transfers	0.029	0.007	0	10

Notes: Normal policy, Year 1; medians in percentage points and counts out of 60 entries. Negative means below-baseline inflation, not necessarily outright deflation.

Across the 420 first-year country-instrument observations under normal policy, 96 headline-inflation responses are negative, compared with 21 GDP-deflator responses. All 60 VAT experiments have negative first-year headline responses and nonnegative GDP-deflator responses. However, 39 of 60 government-investment cases have negative second-year GDP-deflator responses under normal policy, and 15 labour-tax cases have negative first-year responses. Productive-capital, labour-cost and demand channels therefore remain relevant; changing the price index does not remove all below-baseline inflation responses.

A temporary VAT cut directly lowers headline inflation at introduction and raises it at reversal. That separate consumption-tax wedge is excluded from the source GDP valuation. Thus a sign change between those two measures in the VAT experiment is not evidence of an exchange-rate mechanism.

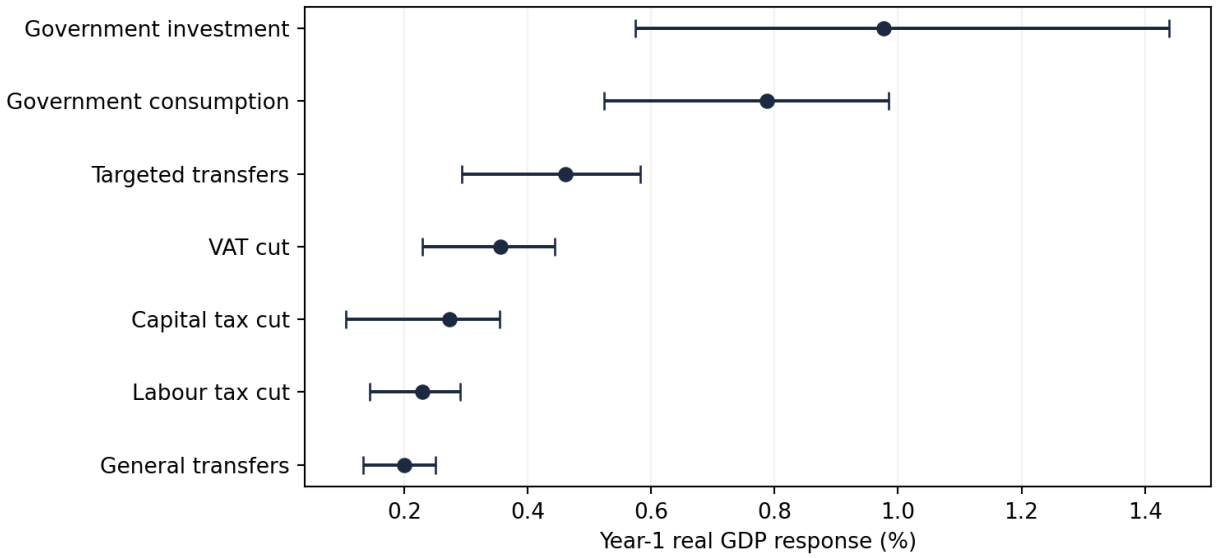
For other instruments, comparing headline, underlying PIE and GDP-deflator inflation helps distinguish the tax wedge from expenditure-price and value-added effects. A domestic-price response can still decline through lower wages, marginal costs or demand. Exchange-rate appreciation can reduce import prices; depreciation can raise imported input costs. These channels need not move all price indices in the same direction.

An exact first-order measurement decomposition is

$$\Delta\pi^H - \Delta\pi^D = (\Delta\pi^H - \Delta\pi^C) - (\Delta\pi^D - \Delta\pi^C).$$

The first term on the right is the direct consumption-tax contribution in these configurations, where the separate consumer-oil block is inactive. The second is the GDP-basket price contribution relative to the underlying consumption-price numeraire. This identity is a measurement decomposition, not a causal attribution of exchange-rate effects. A matched pass-through or exchange-rate experiment would be needed for causal attribution.

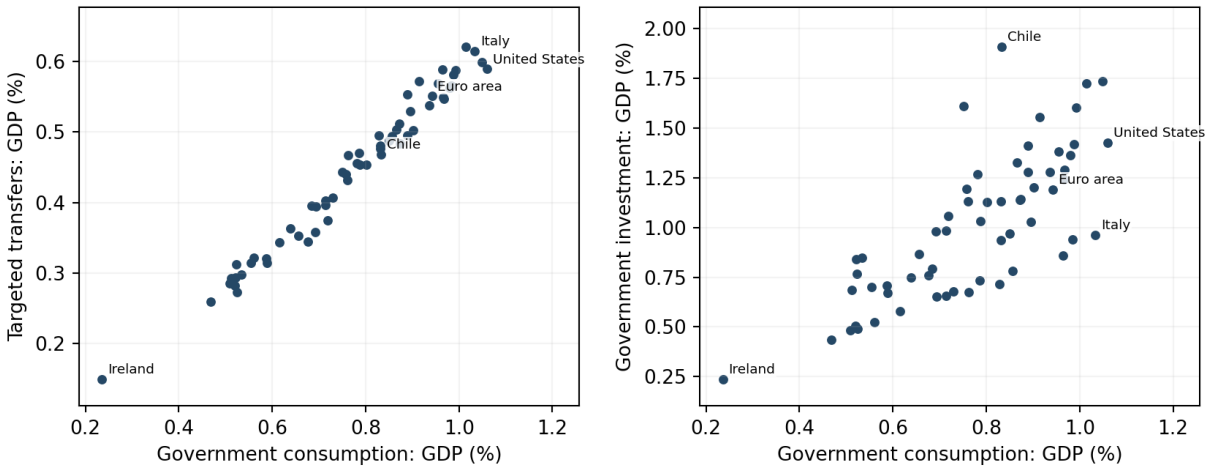
Figure 3: Median and 10th–90th percentile range of Year-1 GDP responses, normal policy



Notes: Real responses are unaffected by the reporting change.

The strong common factor in real responses remains: the first principal component explains about 86 percent of the seven standardized instrument series. The rank correlation of government consumption with targeted transfers is about 0.99, and with government investment about 0.78 (Figure 4).

Figure 4: Cross-country real-GDP associations, normal policy, Year 1



Notes: Selected entries are labelled. The correlations do not establish causality.

12. Conclusions and the next research phase

There is no single fiscal multiplier. Government purchases, transfers and tax cuts affect different economic decisions, and monetary policy changes their transmission. Public investment has the largest median first-year response in this revised standardized comparison.

A second lesson concerns calibration discipline. Applying a common nominal adjustment-cost profile removed much of the earlier euro-area headline-inflation outlier pattern. The revised main results are more comparable on that dimension, but common coefficients do not establish an empirically preferred

country calibration or eliminate differences in monetary arrangements and fiscal financing.

The next causal tests should vary openness and import composition with consistent steady states, household shares and horizons, investment adjustment and public-capital efficiency, and financing rules. Parameter-block swaps between high- and low-response cases can then distinguish sensitivities from actual cross-country parameter differences.

The prudent risk-management implication is to compare policy packages under transparent assumptions and alternative scenarios. The Three Cs—comprehensive, consistent and coordinated—also matter when choosing fiscal instruments and assessing cross-border effects. A large short-run multiplier is not sufficient evidence that a policy is desirable or self-financing.

This working paper incorporates the results verified for the 11 November 2026 release. All 60 entries and seven fiscal instruments have been solved under the harmonized profile. The replication package preserves the prior calibration for comparison; results remain conditional model simulations rather than empirical causal estimates.

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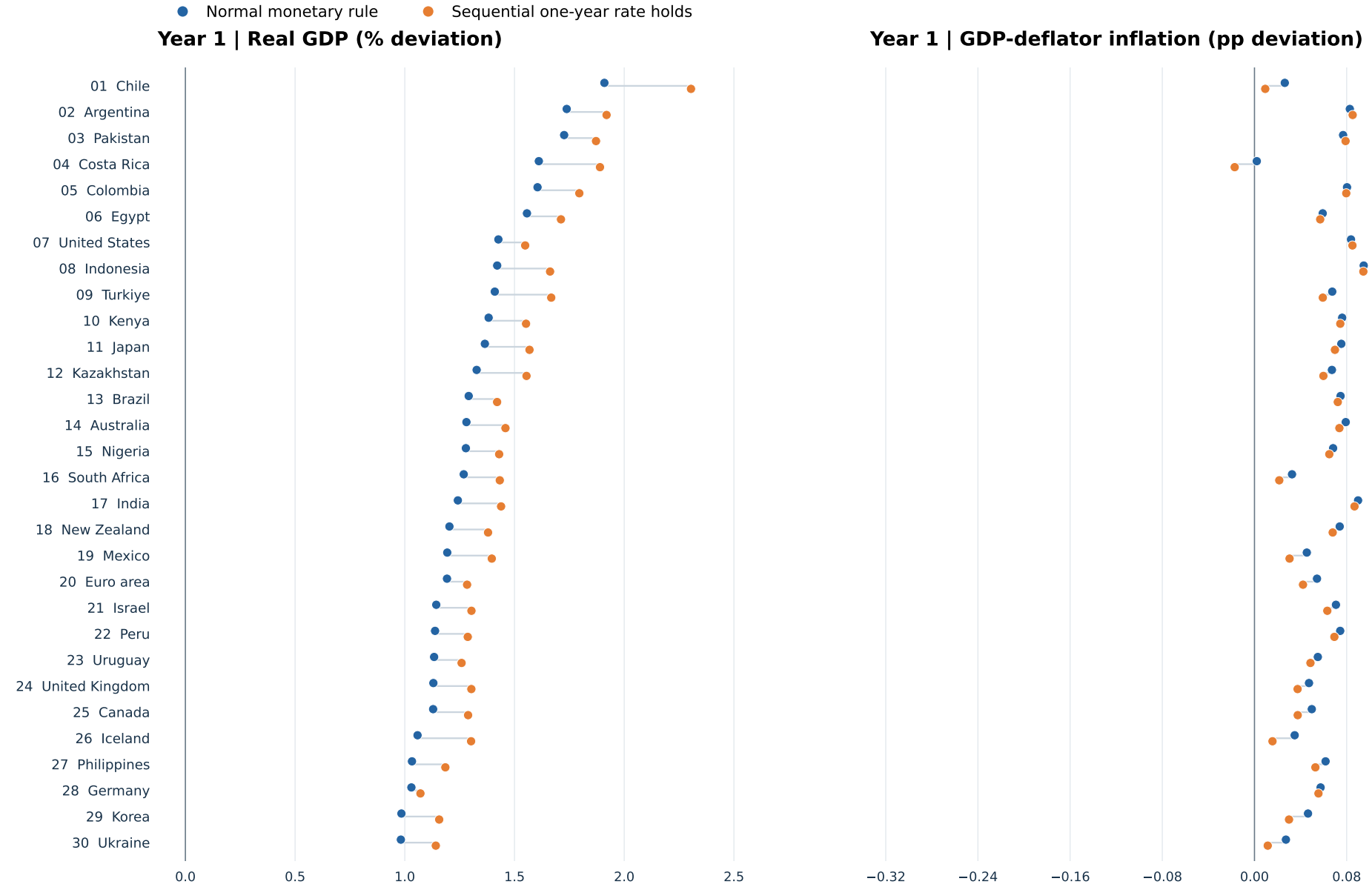
A. Country-by-country fiscal responses

The following charts use the harmonized main calibration. Each instrument is shown on four pages: Year 1 (ranks 1–30, then 31–60) and Year 2 (ranks 1–30, then 31–60). Each page shows real GDP and GDP-deflator inflation side by side. Entries are ranked by the normal-rule GDP response in each year; the inflation panel retains that order. Horizontal scales are identical across Years 1 and 2 within each instrument and variable. Blue dots denote the normal rule; orange dots denote sequential one-year rate holds. The euro-area aggregate overlaps its members.

The figures report GDP-deflator inflation on the source GDP valuation basis. The companion diagnostics retain headline consumption inflation for comparison. No fully announced two-year rate-hold result is included.

Government investment

YEAR 1 | RANKS 01-30

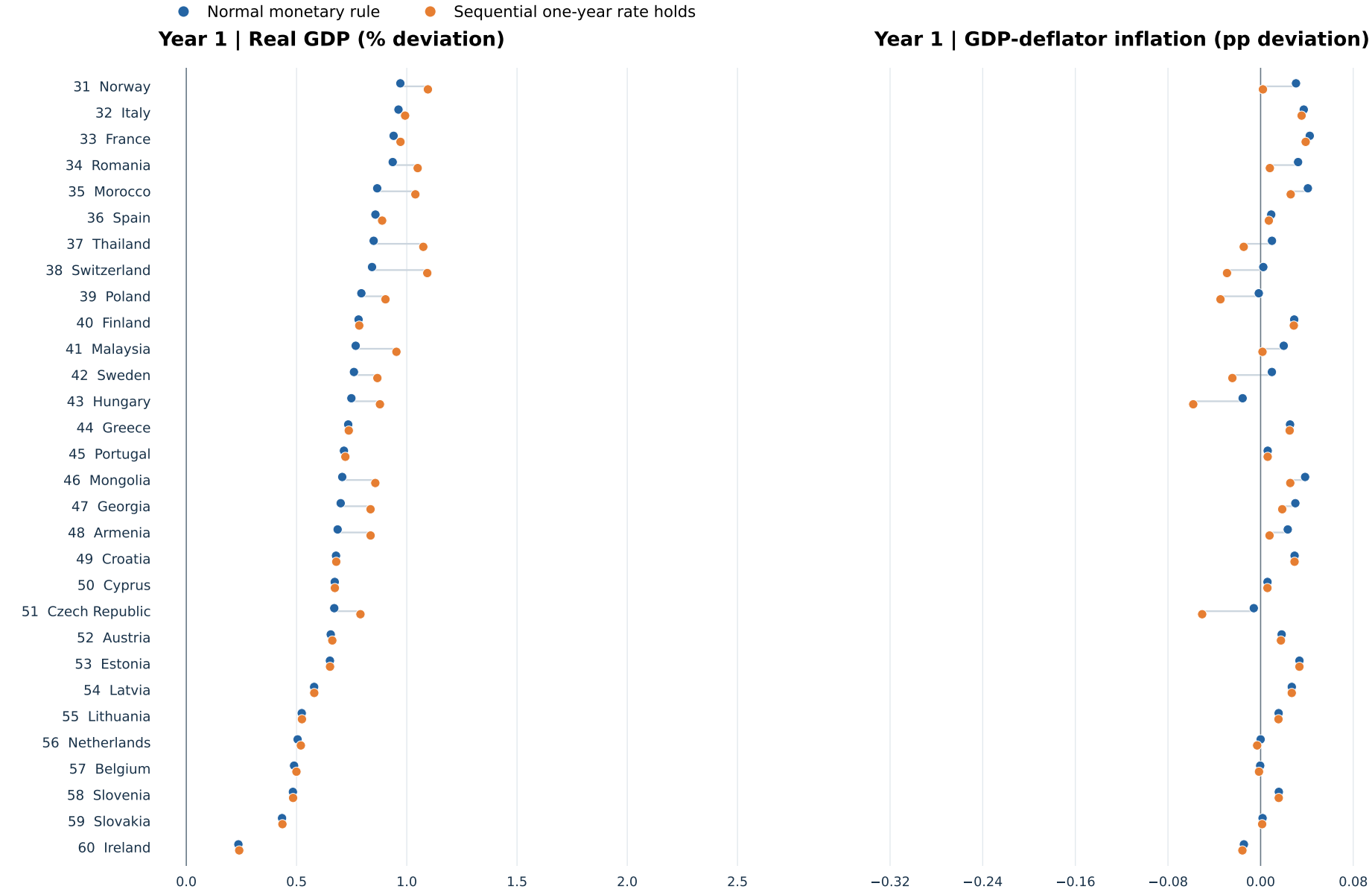


Ranked by the Year-1 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Government investment

YEAR 1 | RANKS 31-60

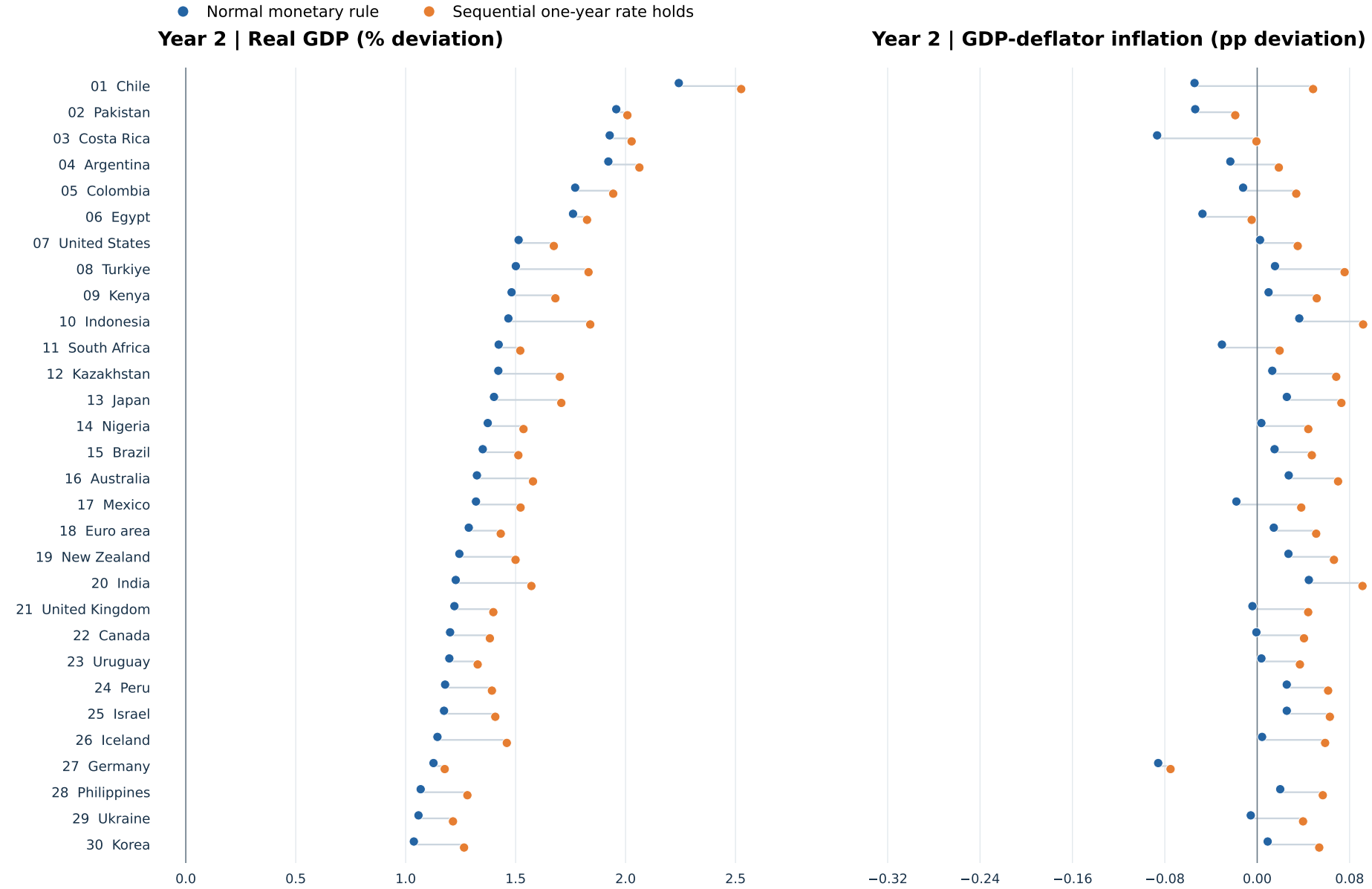


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Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Government investment

YEAR 2 | RANKS 01-30

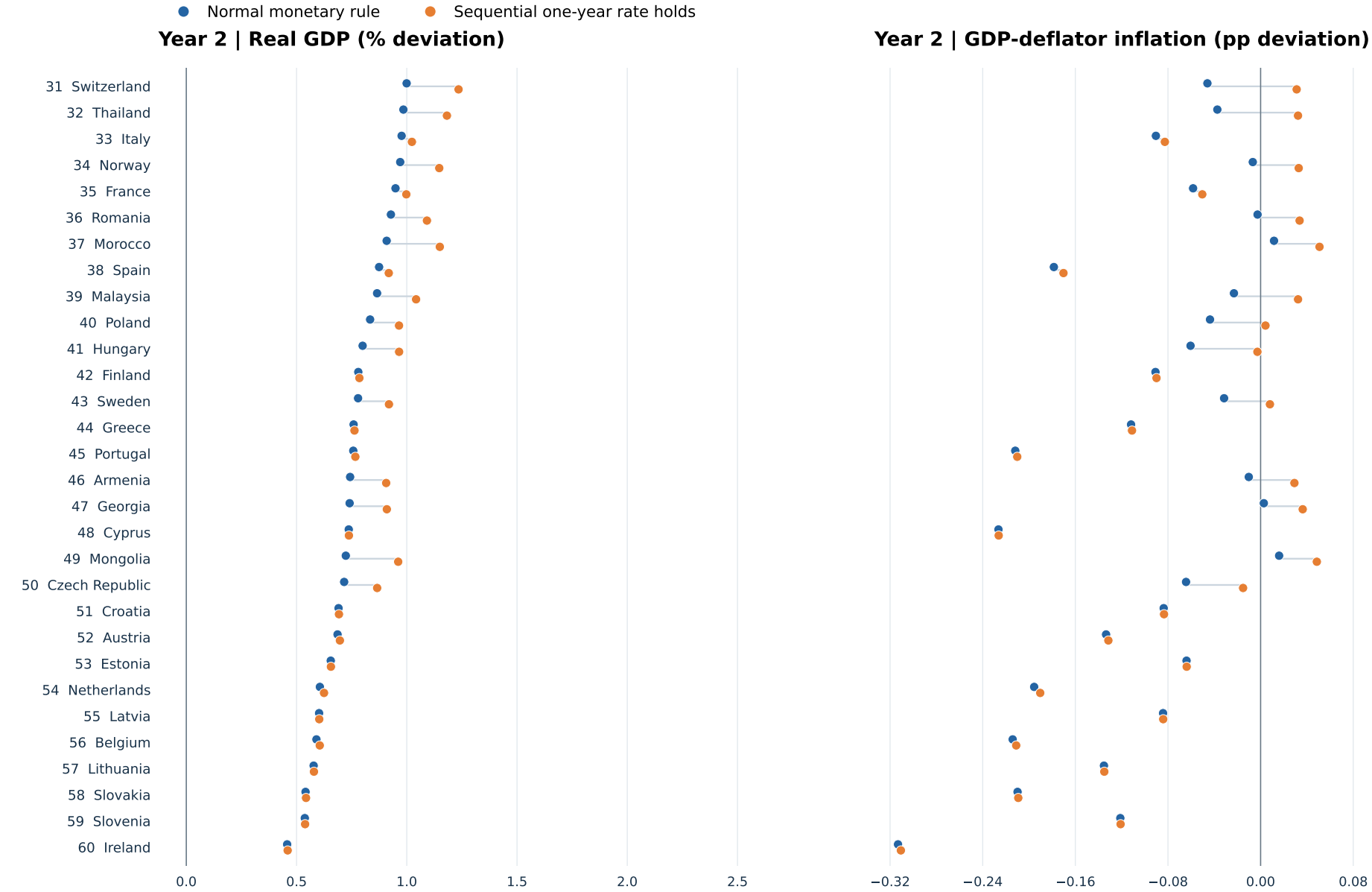


Ranked by the Year-2 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Government investment

YEAR 2 | RANKS 31-60

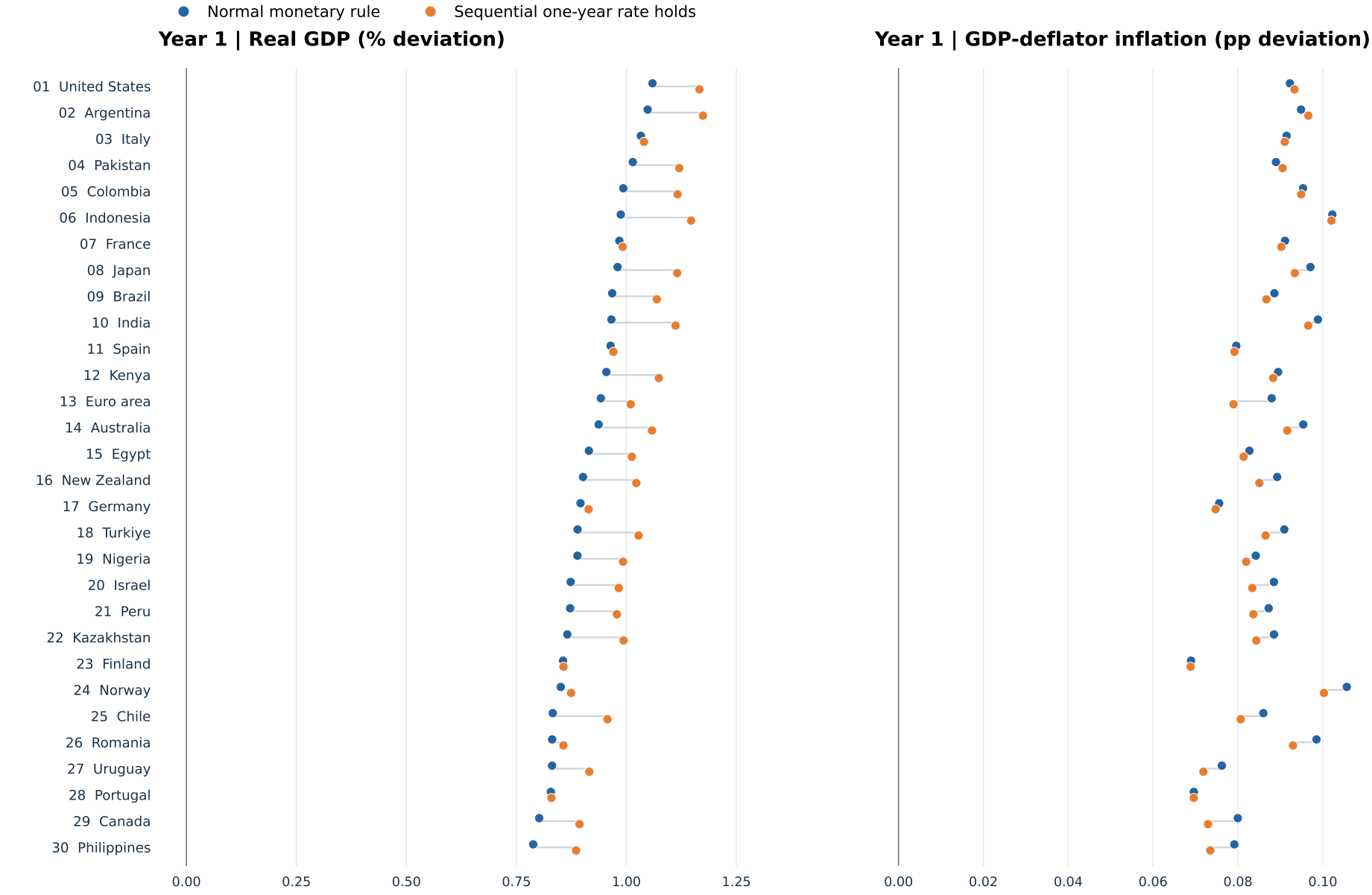


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Government consumption

YEAR 1 | RANKS 01-30

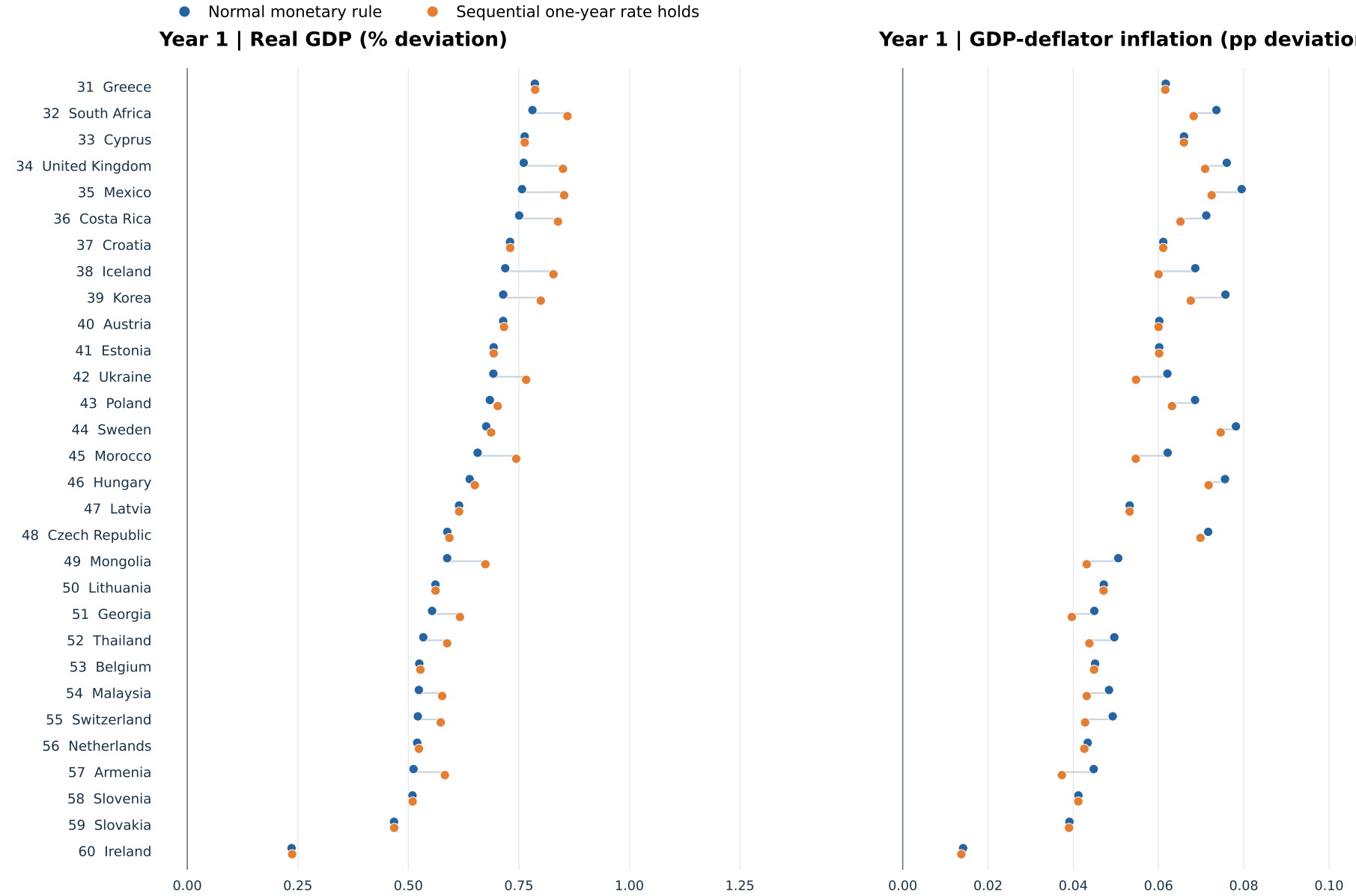


Ranked by the Year-1 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

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Government consumption

YEAR 1 | RANKS 31-60

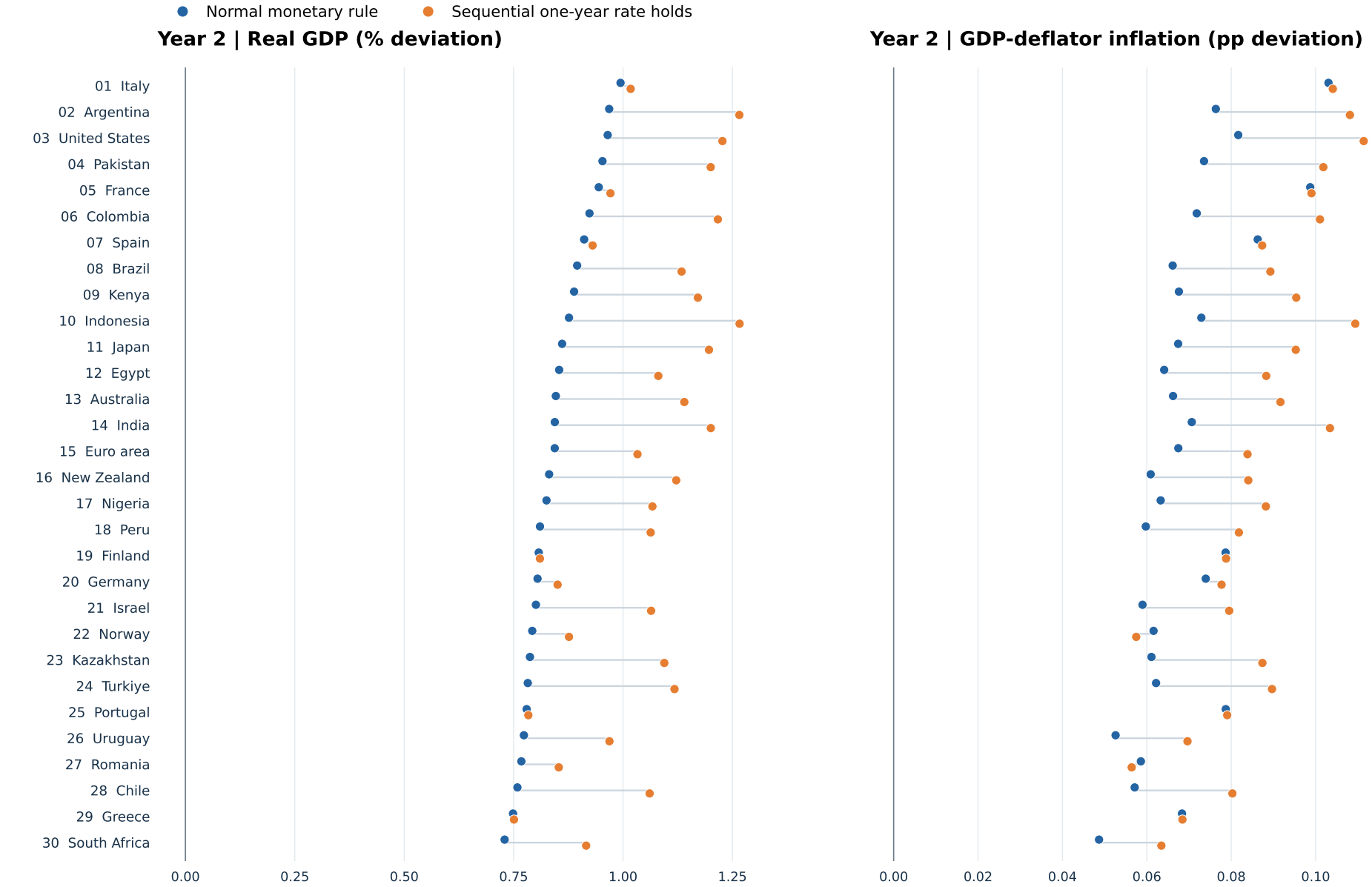


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Government consumption

YEAR 2 | RANKS 01-30

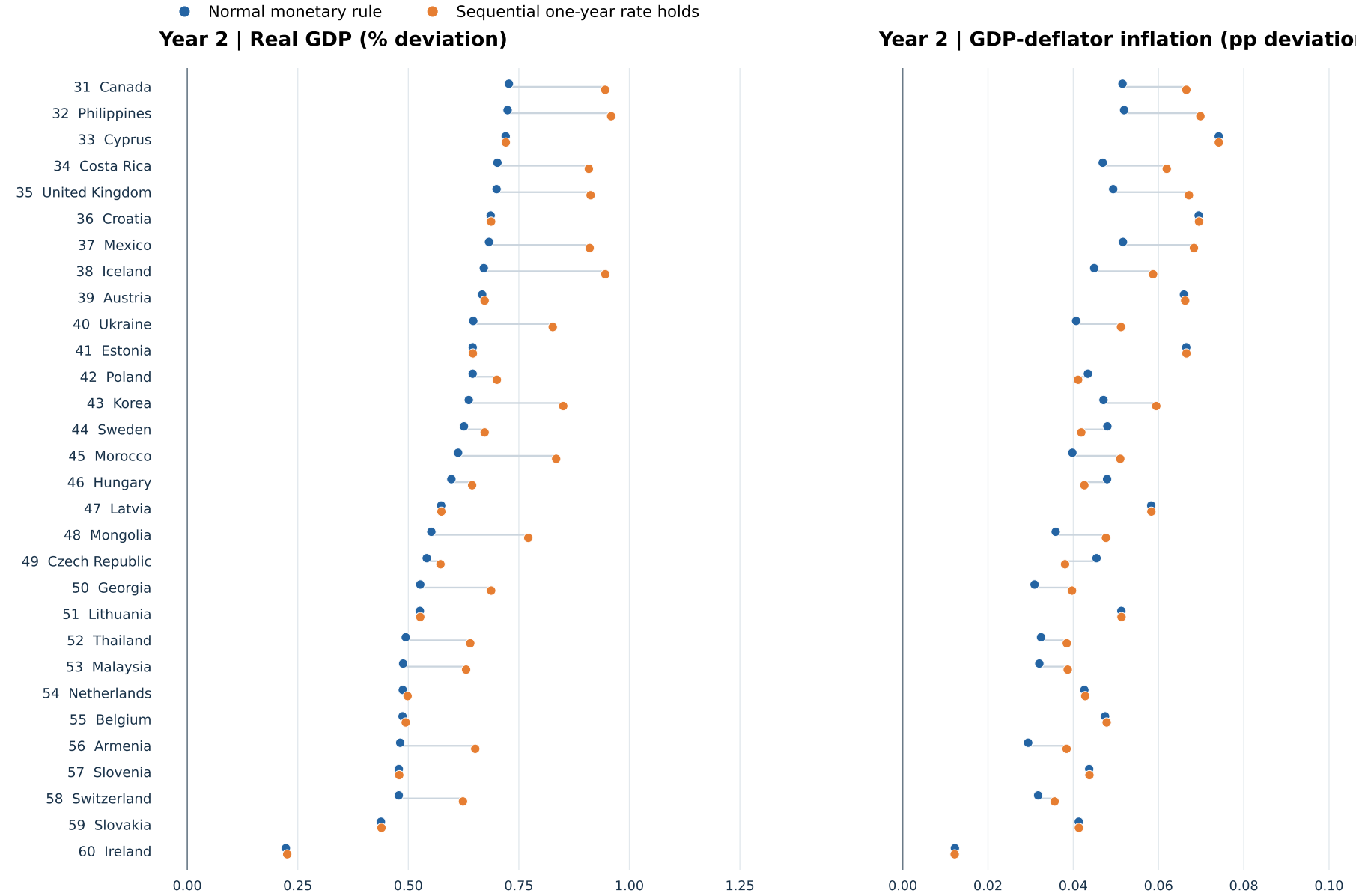


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Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Government consumption

YEAR 2 | RANKS 31-60

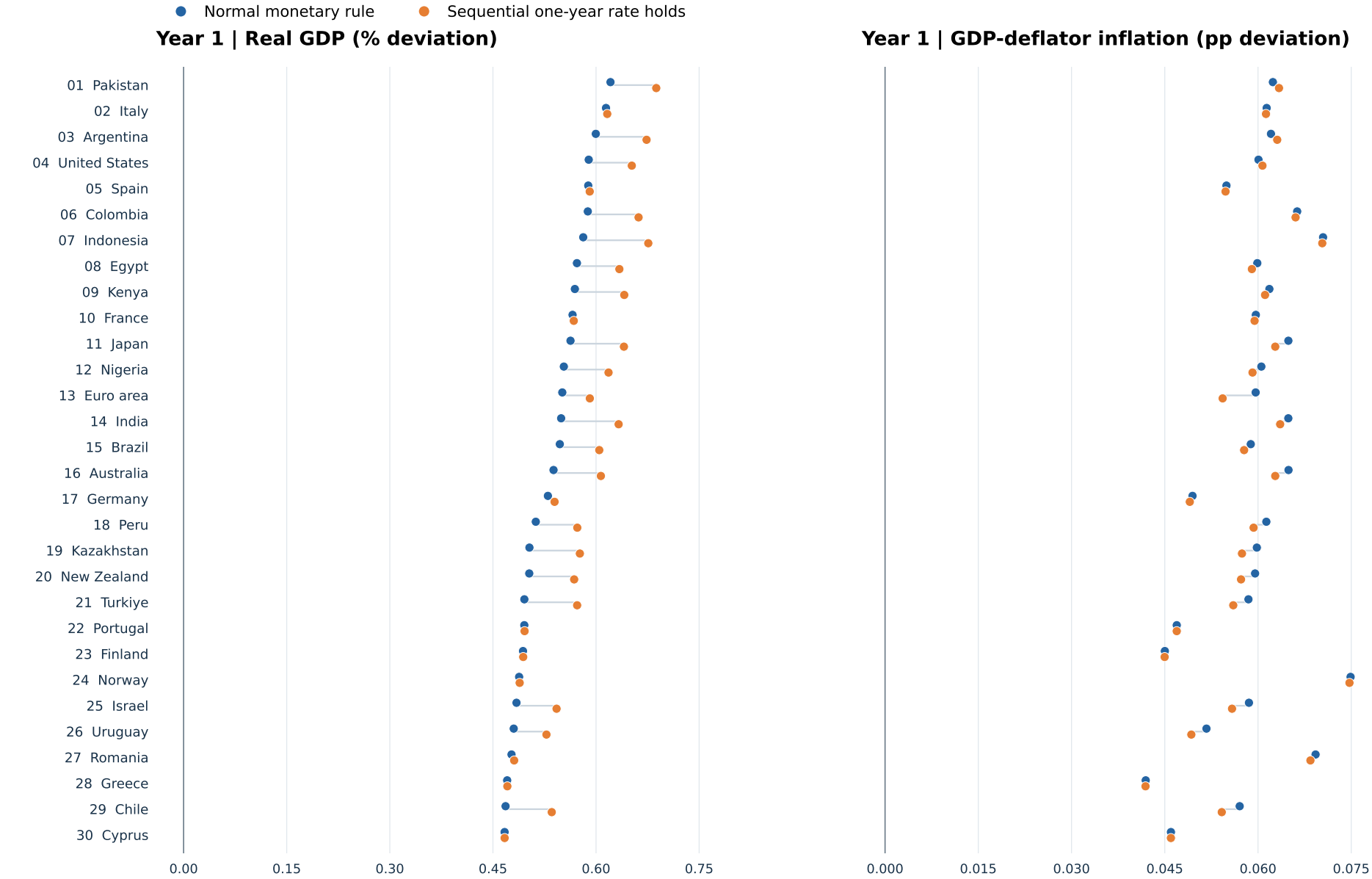


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Targeted transfers

YEAR 1 | RANKS 01-30

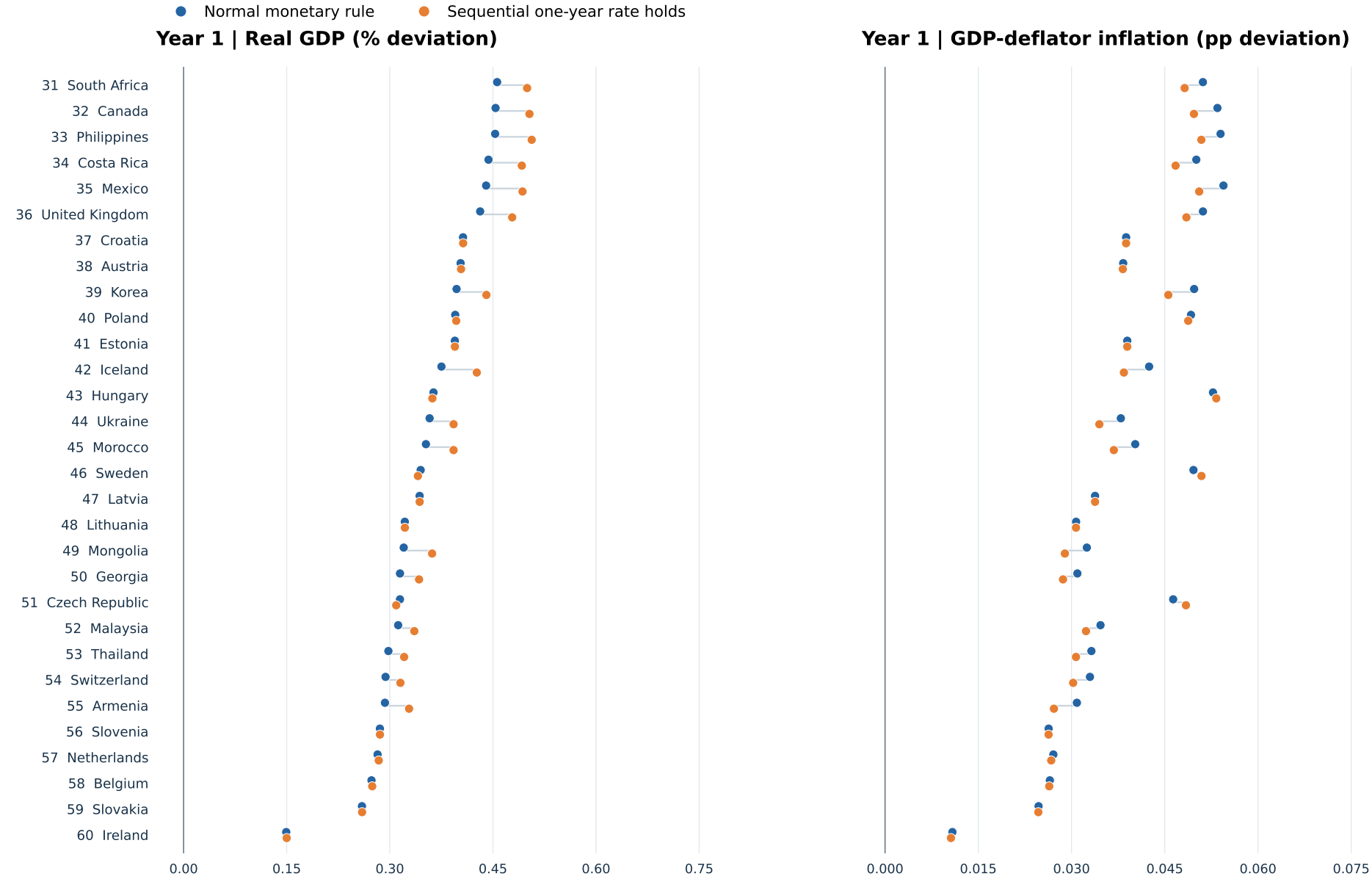


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Targeted transfers

YEAR 1 | RANKS 31-60

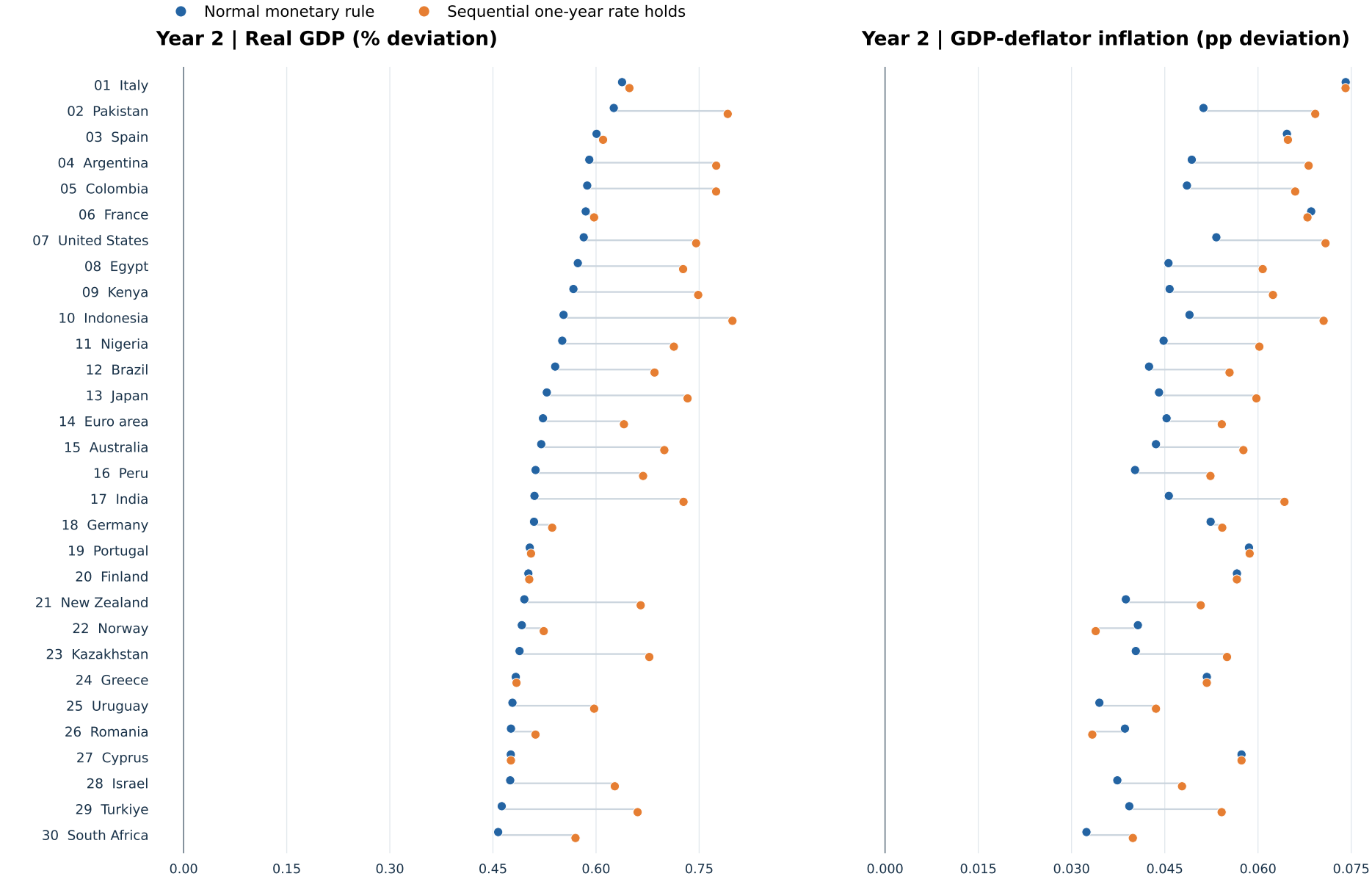


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Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Targeted transfers

YEAR 2 | RANKS 01-30

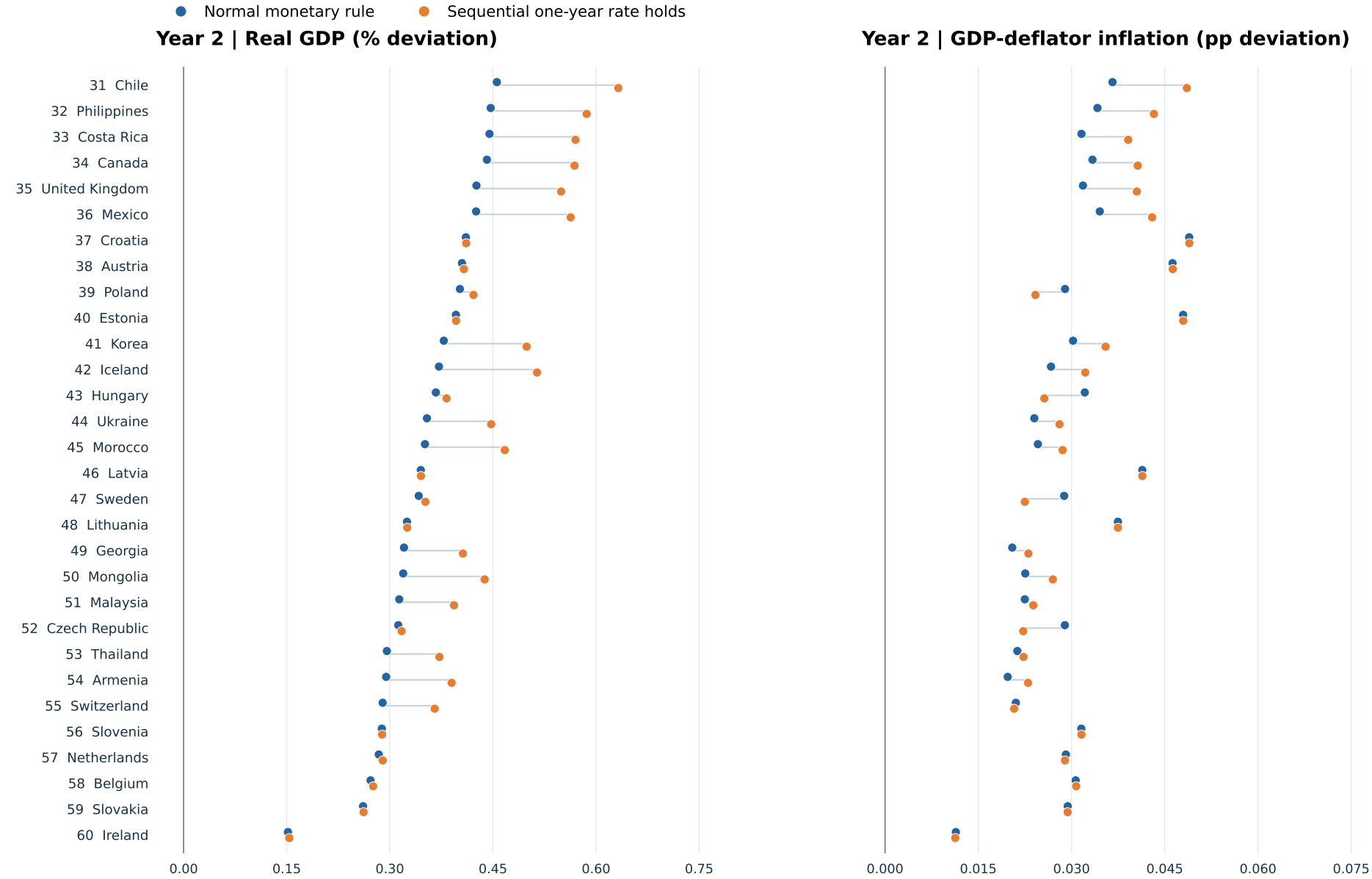


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Targeted transfers

YEAR 2 | RANKS 31-60

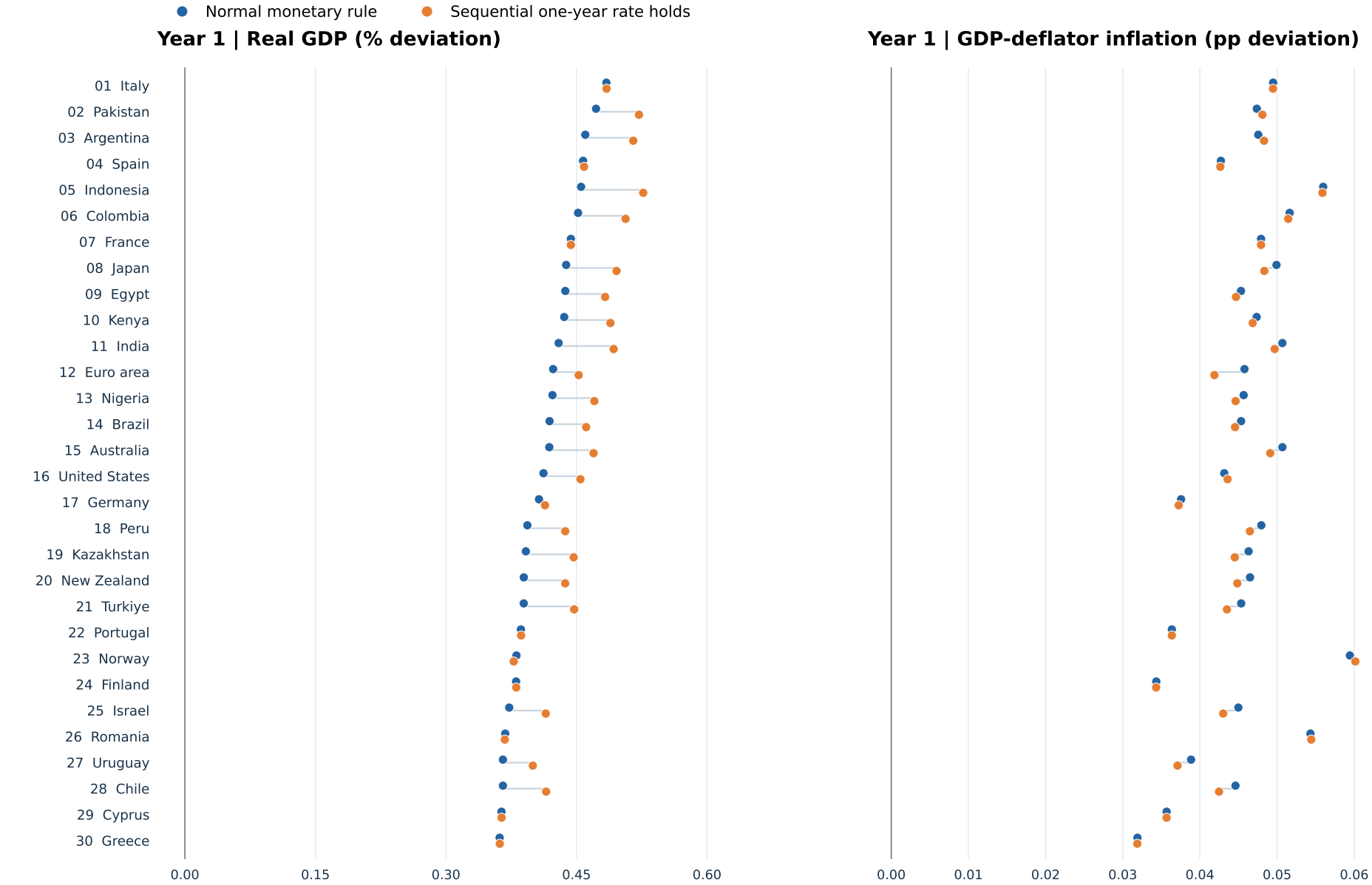


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VAT cut

YEAR 1 | RANKS 01-30

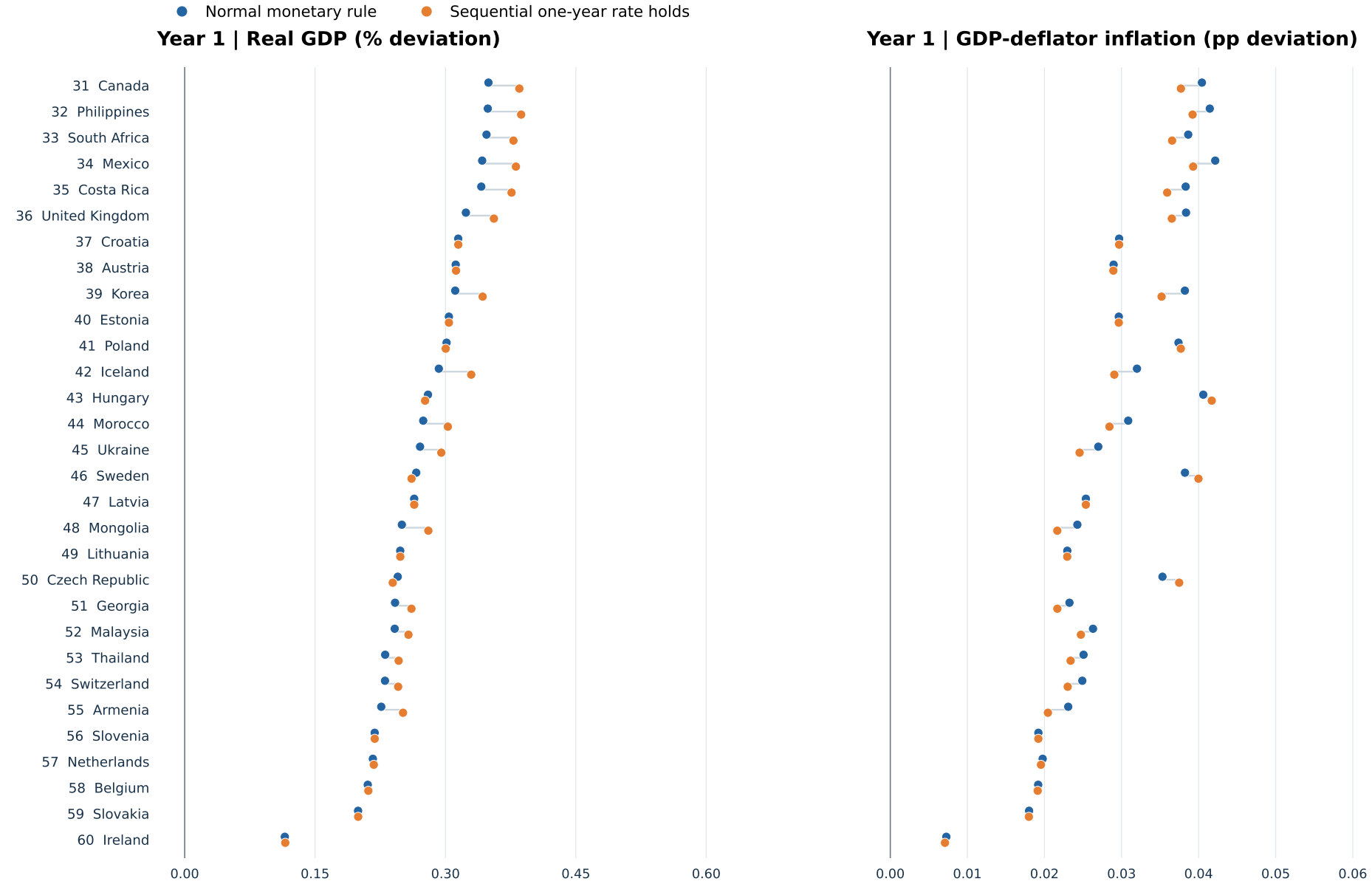


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VAT cut

YEAR 1 | RANKS 31-60

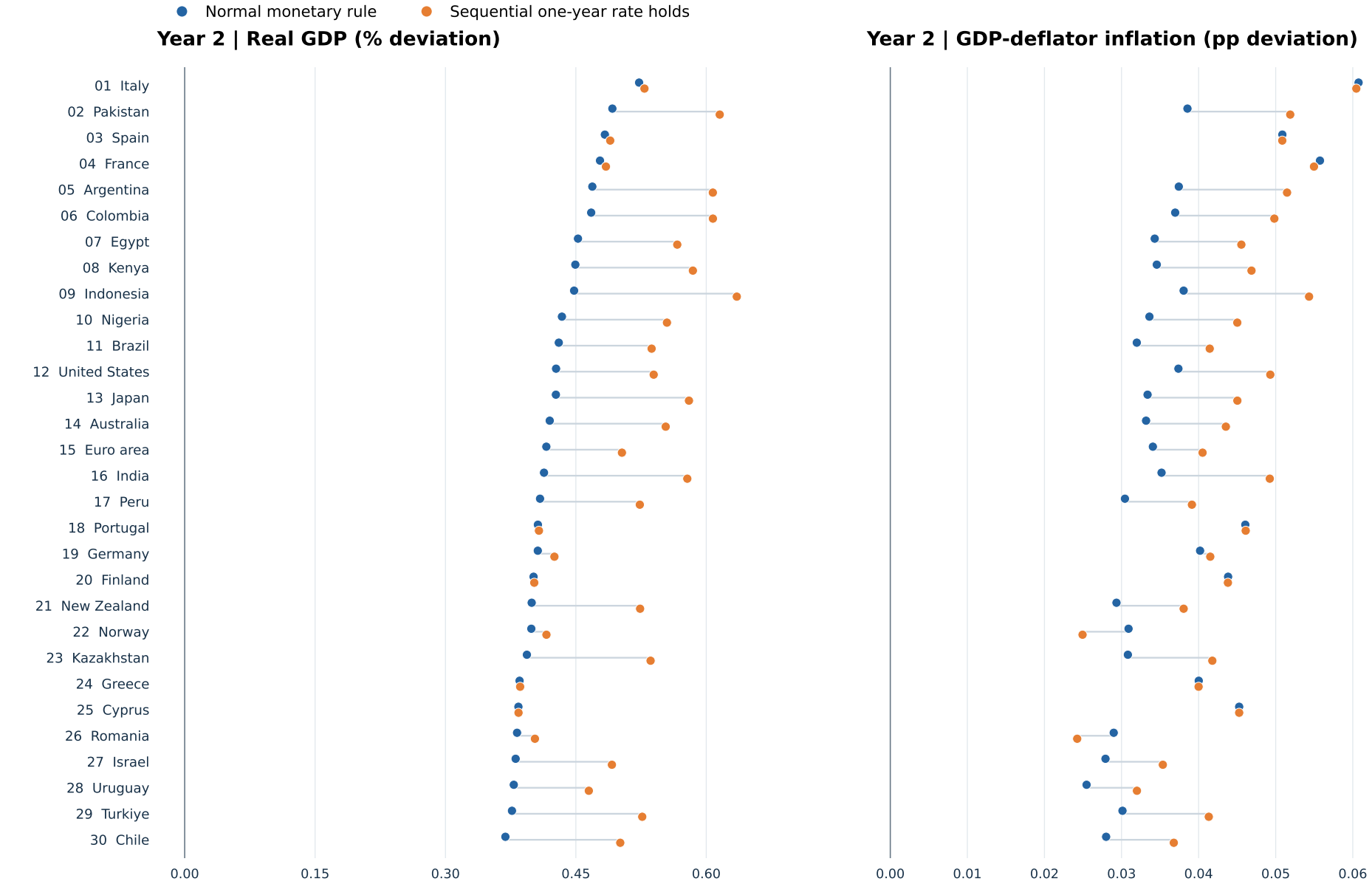


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VAT cut

YEAR 2 | RANKS 01-30

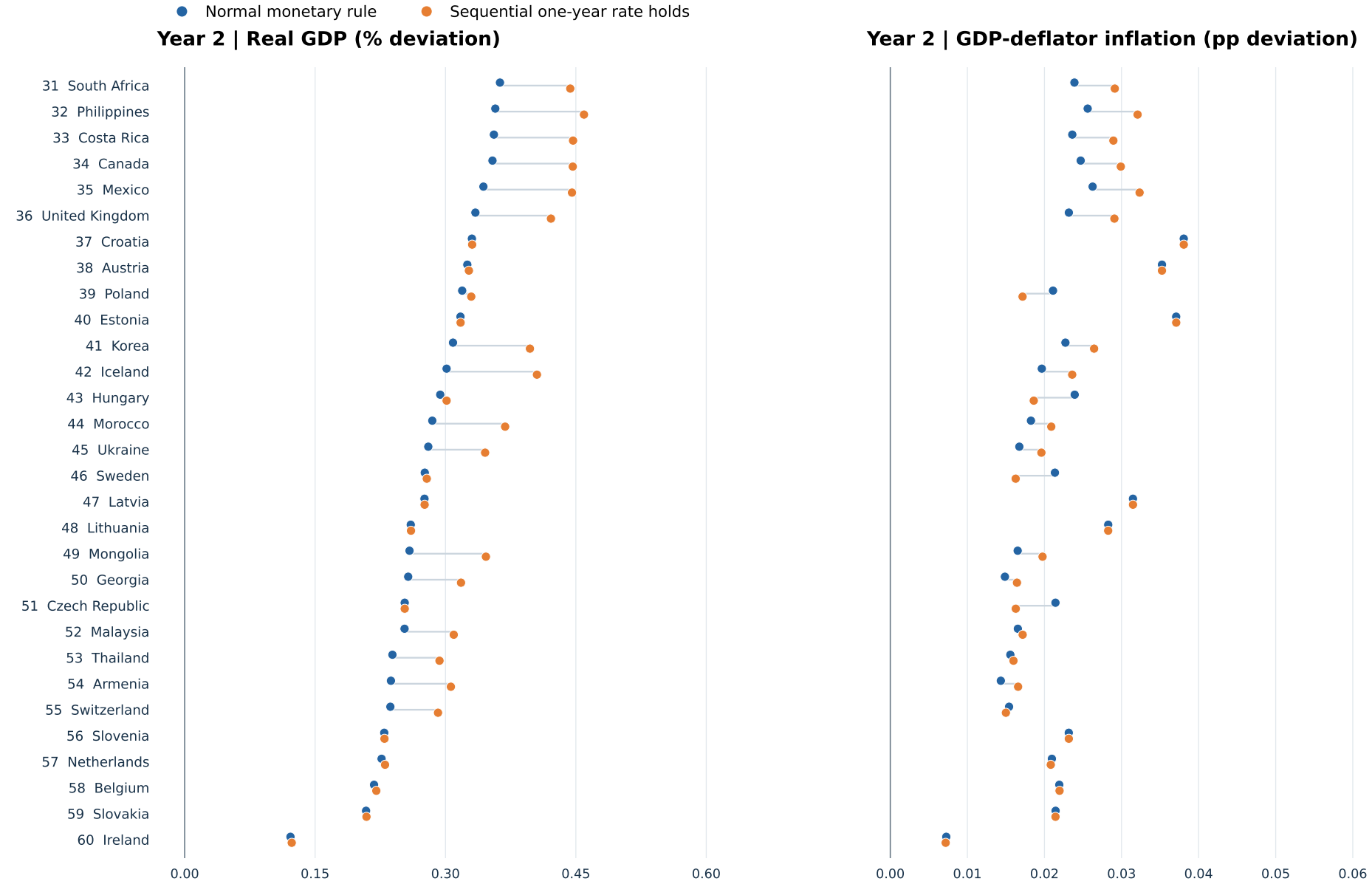


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VAT cut

YEAR 2 | RANKS 31-60

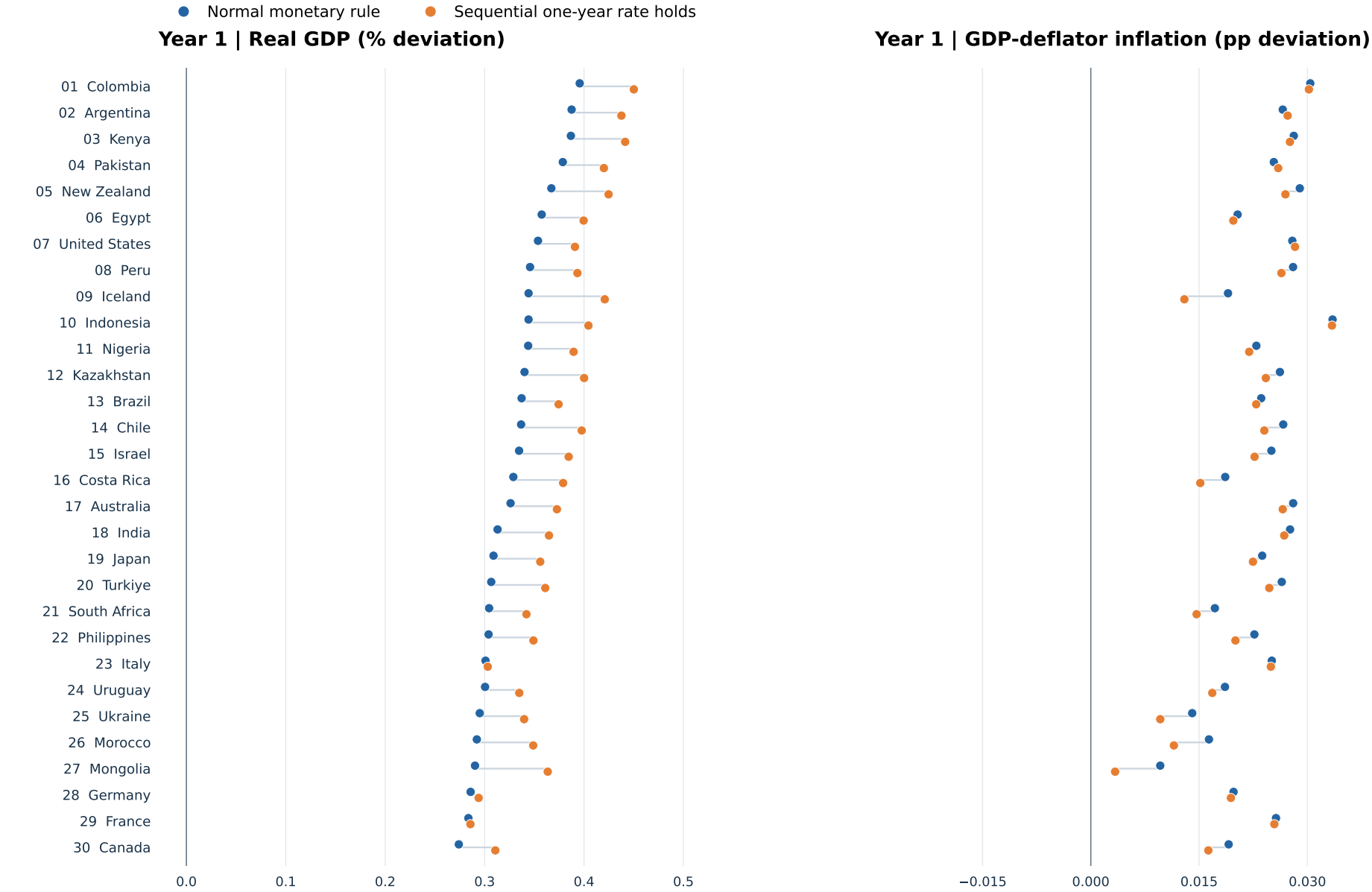


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Capital tax cut

YEAR 1 | RANKS 01-30

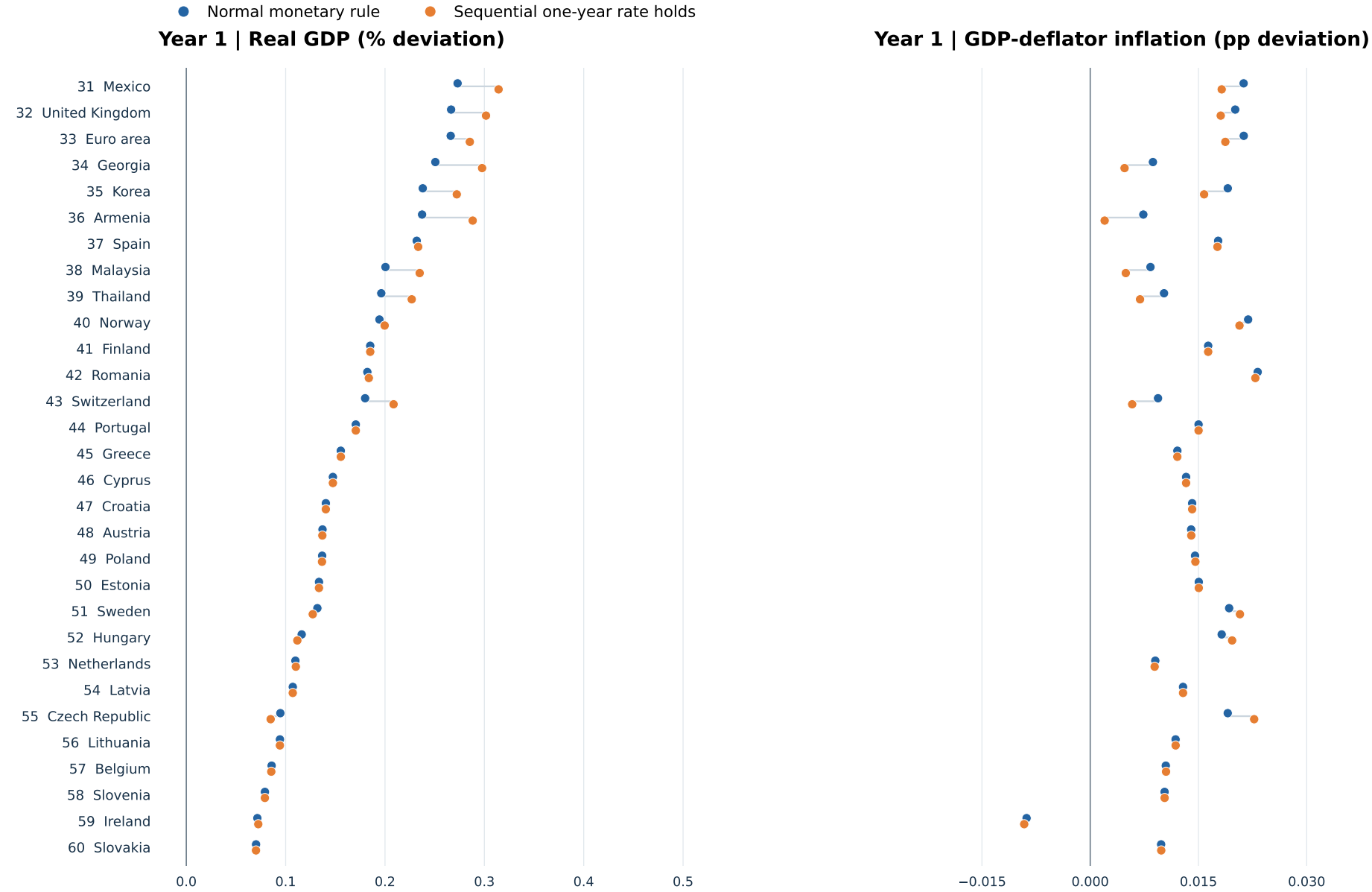


Ranked by the Year-1 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

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Capital tax cut

YEAR 1 | RANKS 31-60

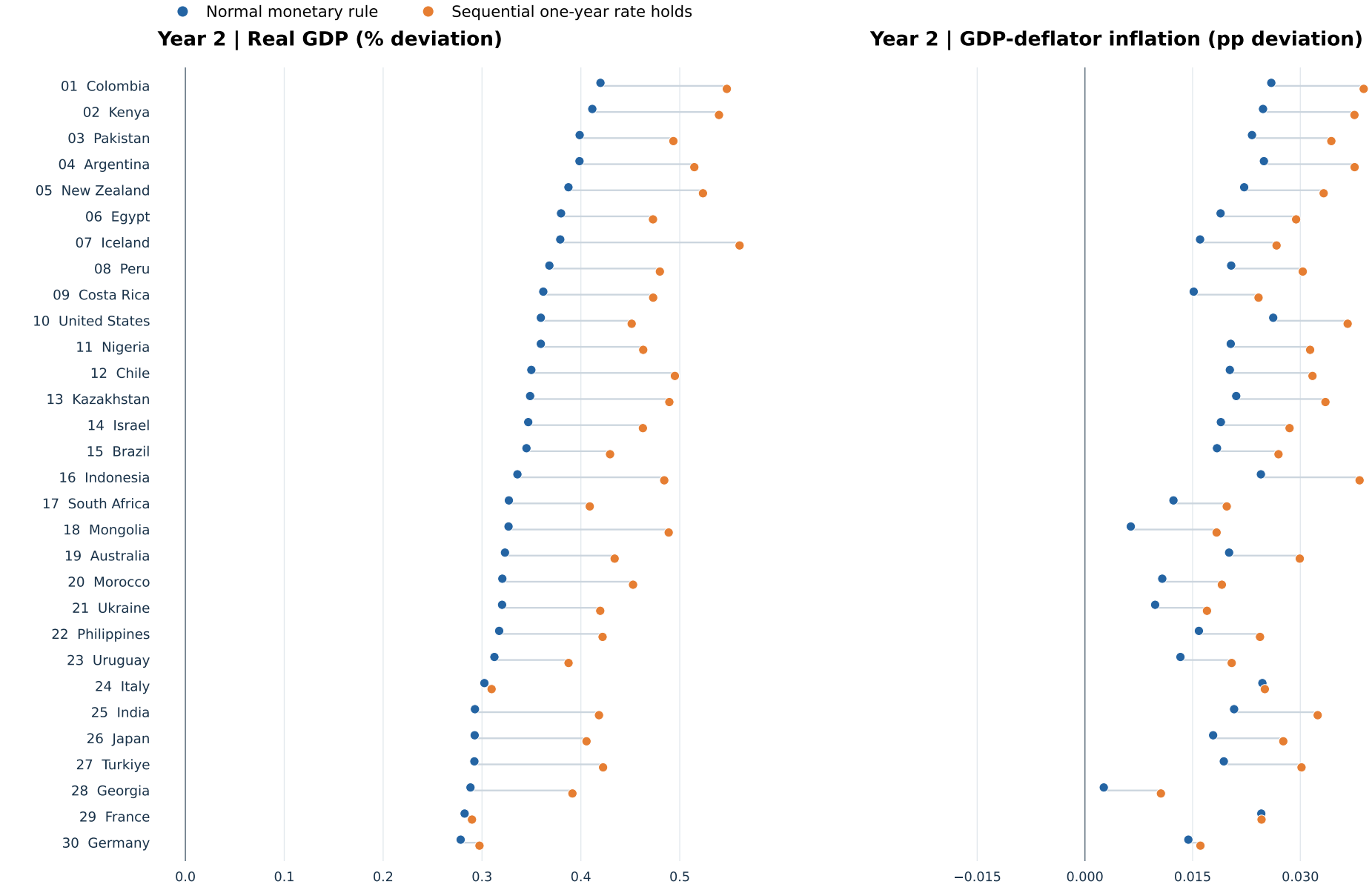


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Capital tax cut

YEAR 2 | RANKS 01-30

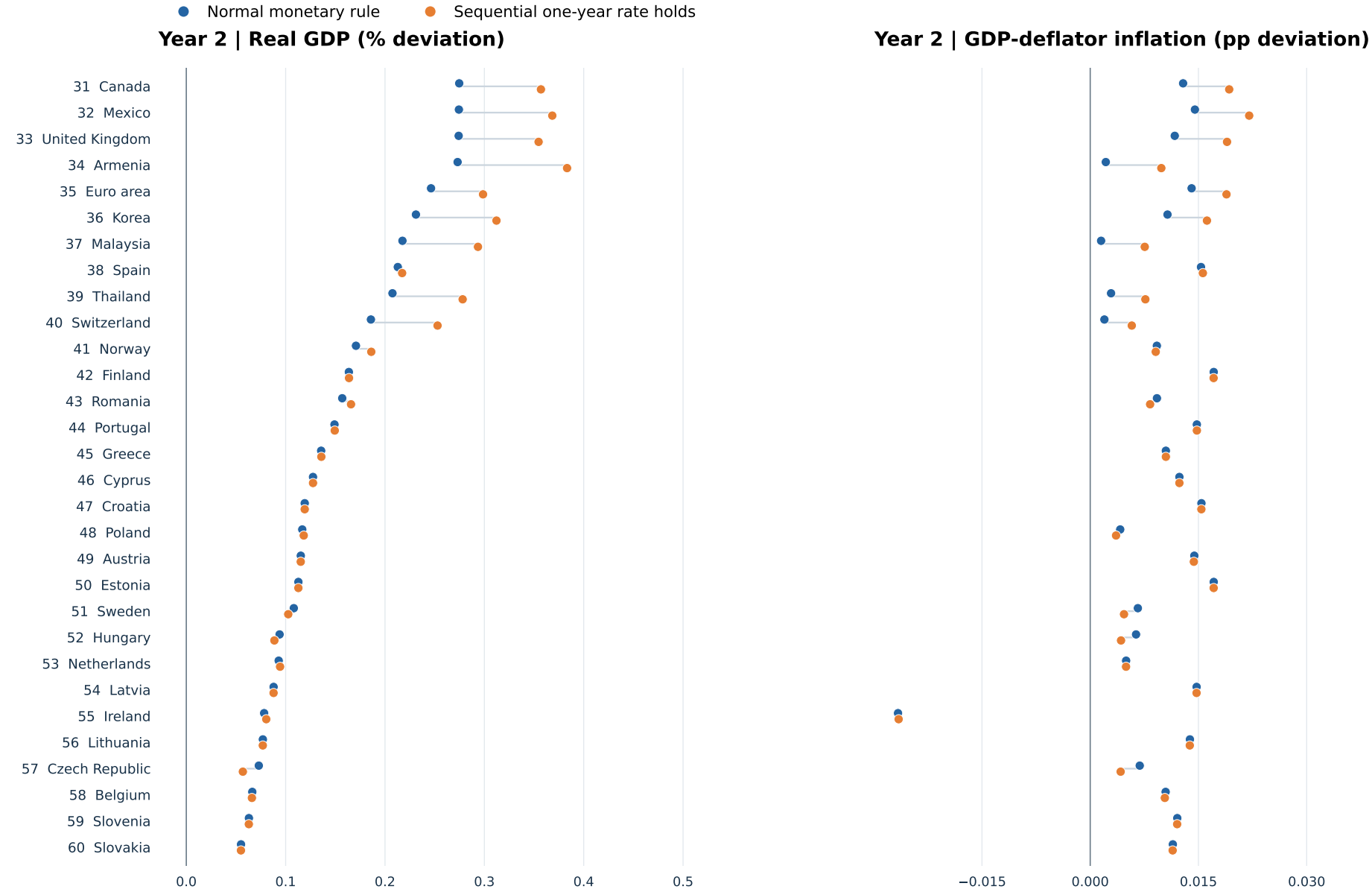


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Capital tax cut

YEAR 2 | RANKS 31-60

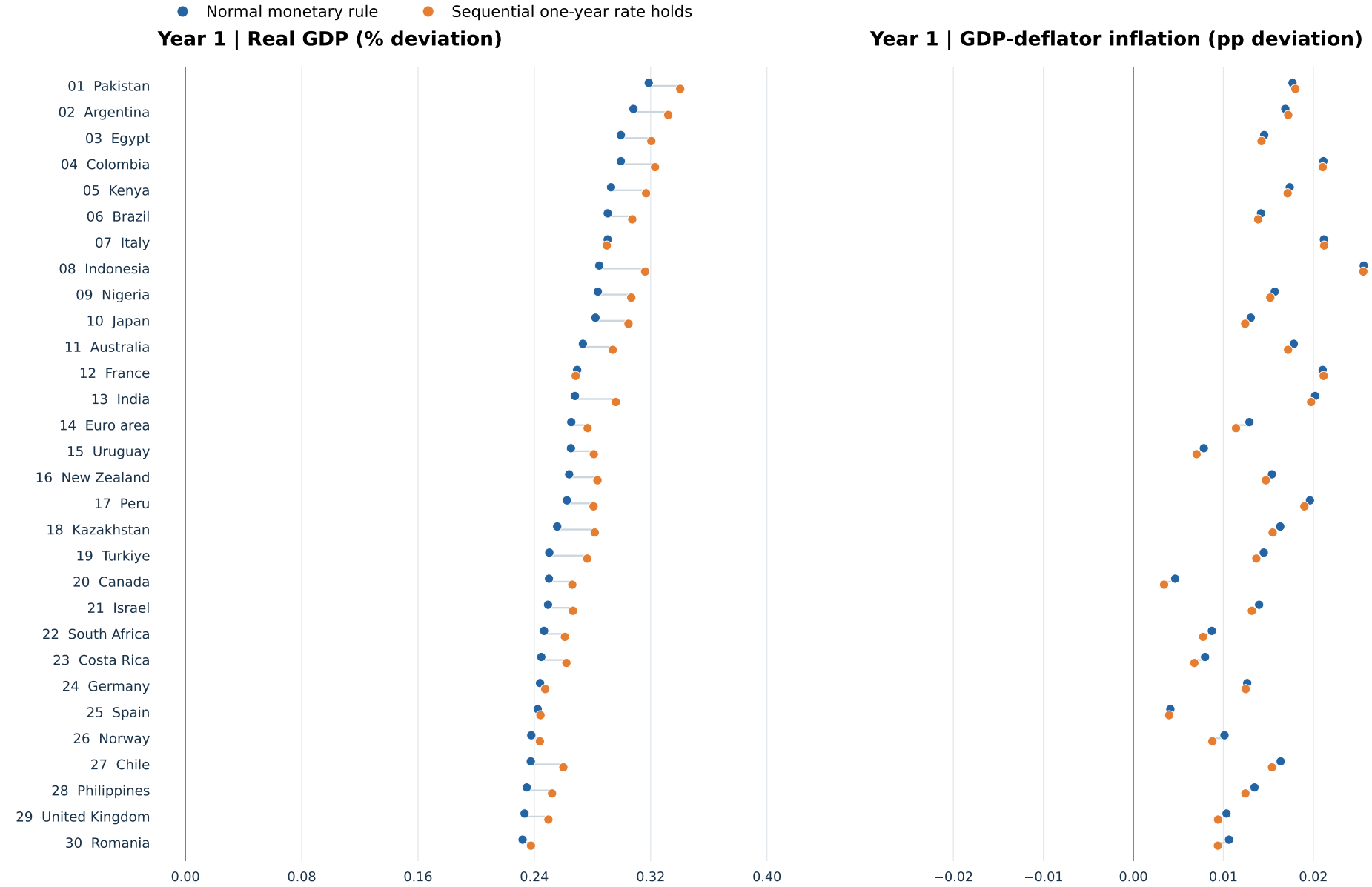


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Labour tax cut

YEAR 1 | RANKS 01-30

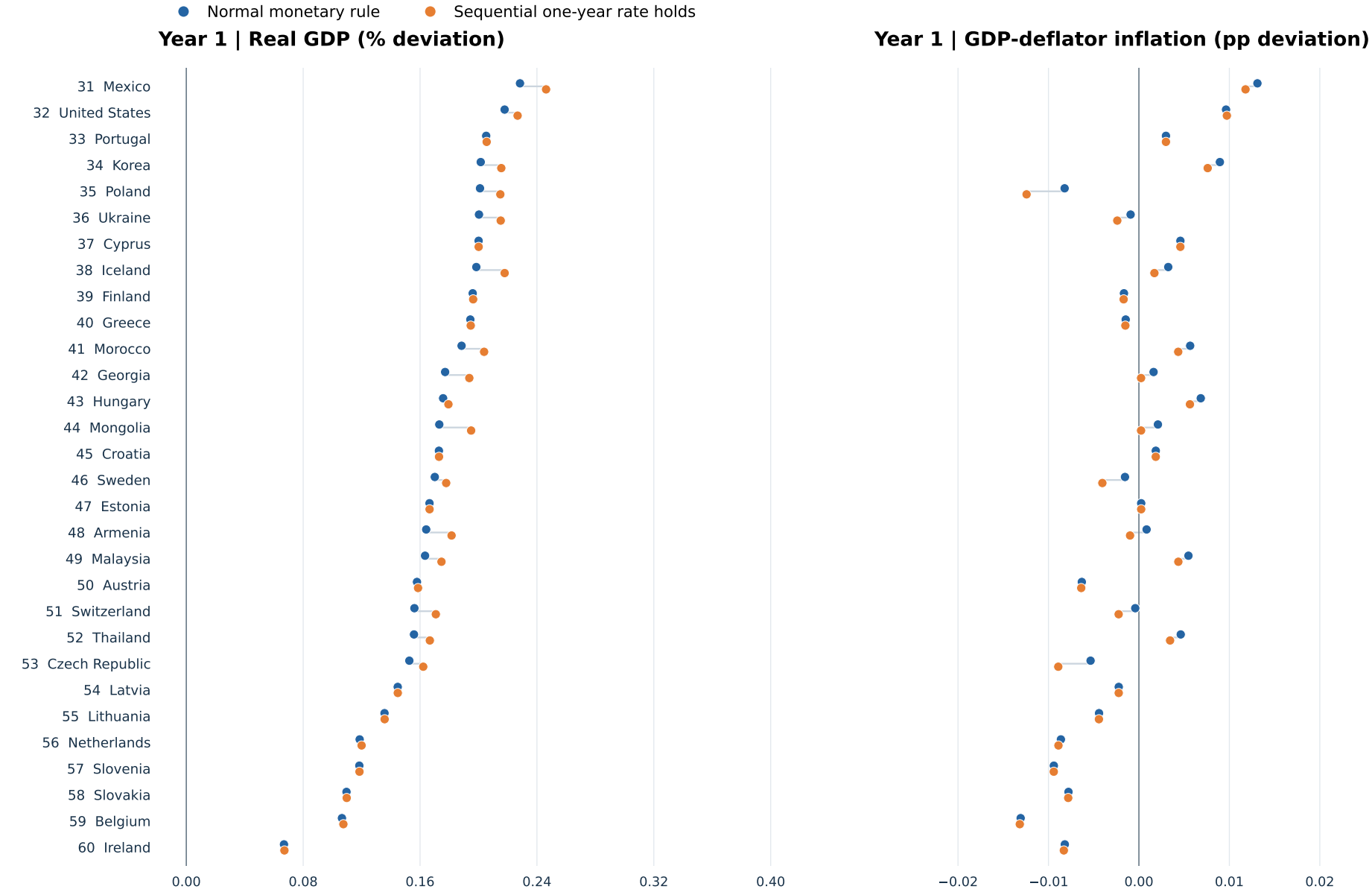


Ranked by the Year-1 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

Labour tax cut

YEAR 1 | RANKS 31-60

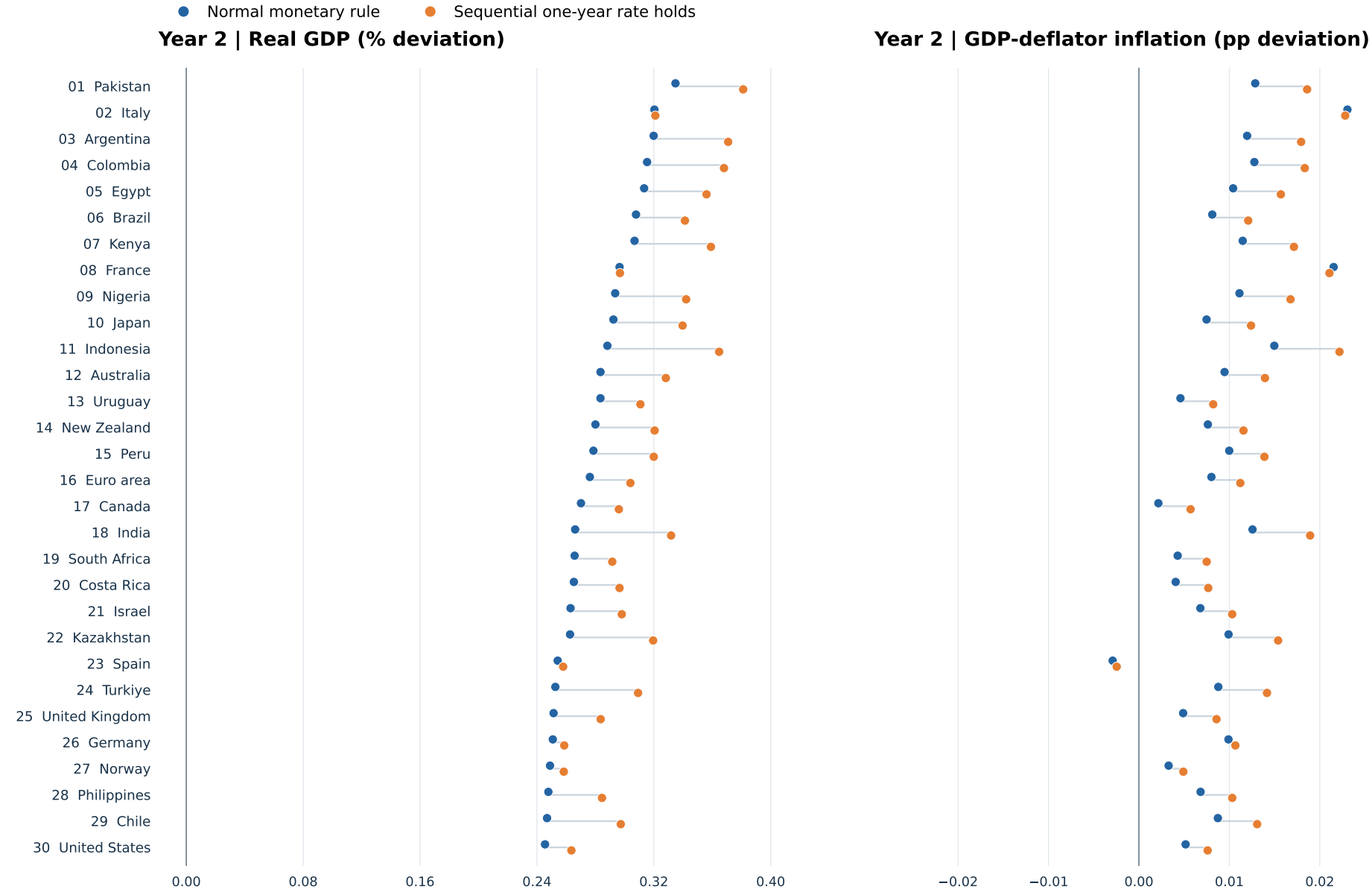


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Labour tax cut

YEAR 2 | RANKS 01-30

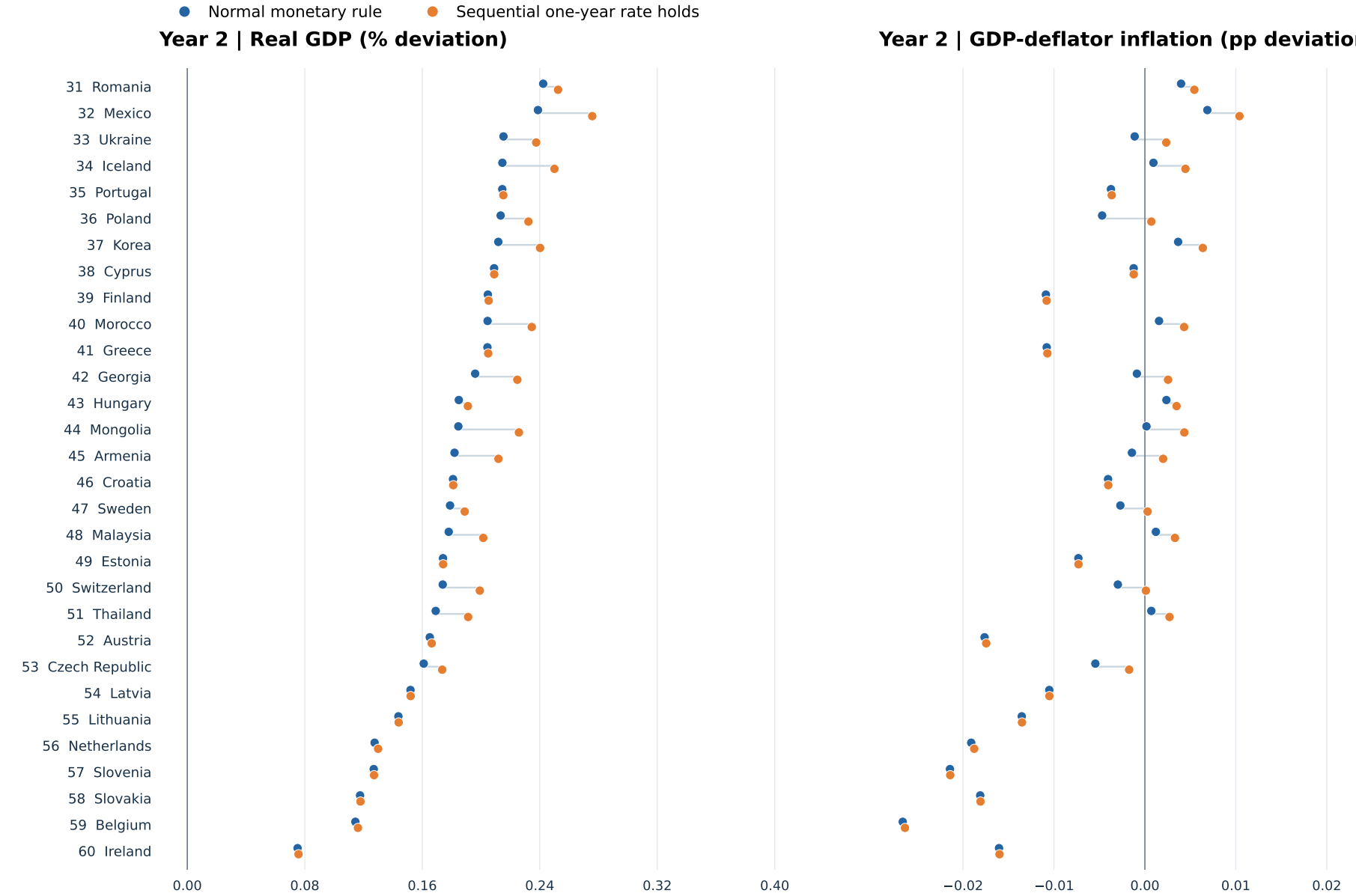


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Labour tax cut

YEAR 2 | RANKS 31-60

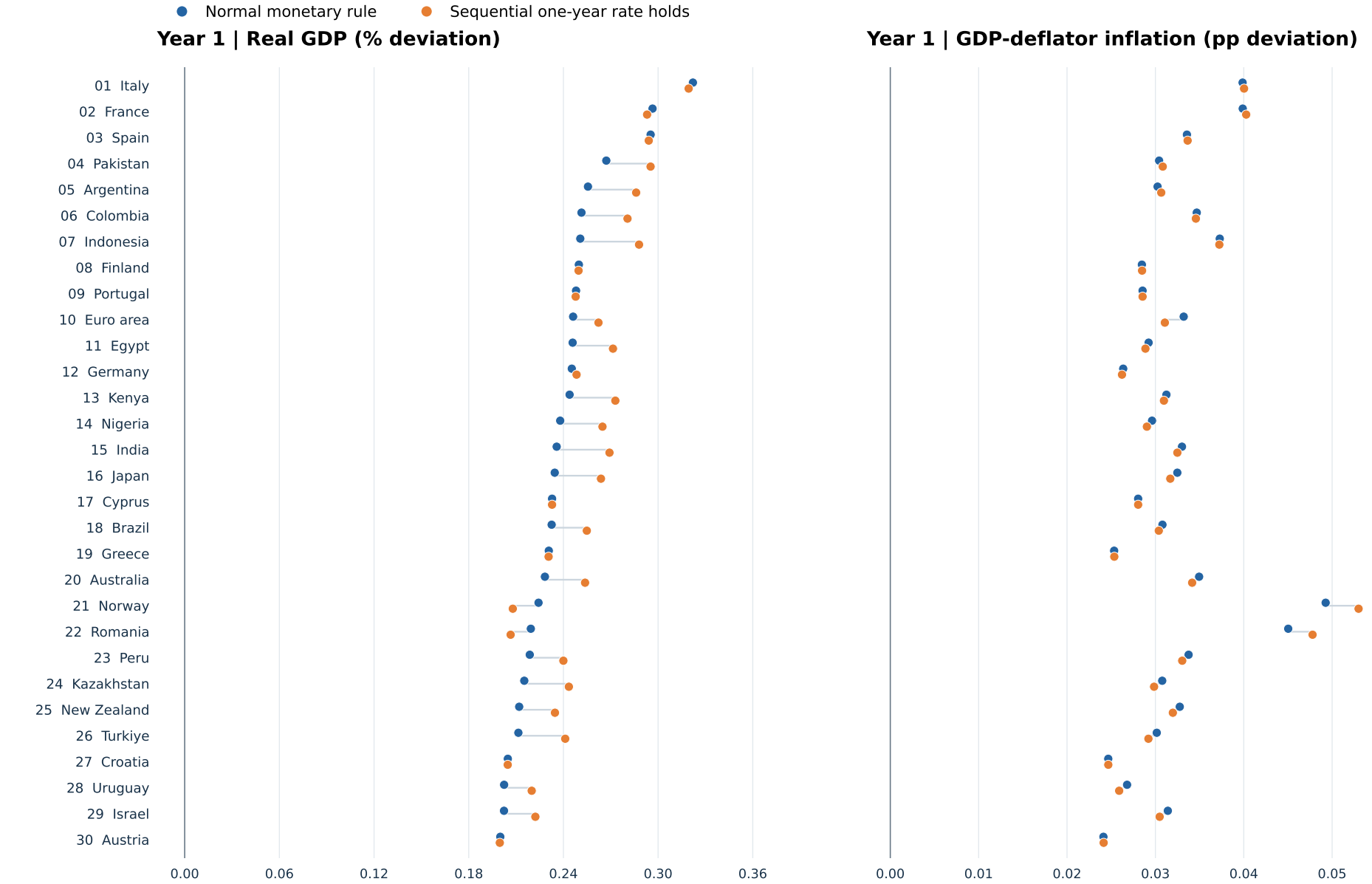


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General transfers

YEAR 1 | RANKS 01-30

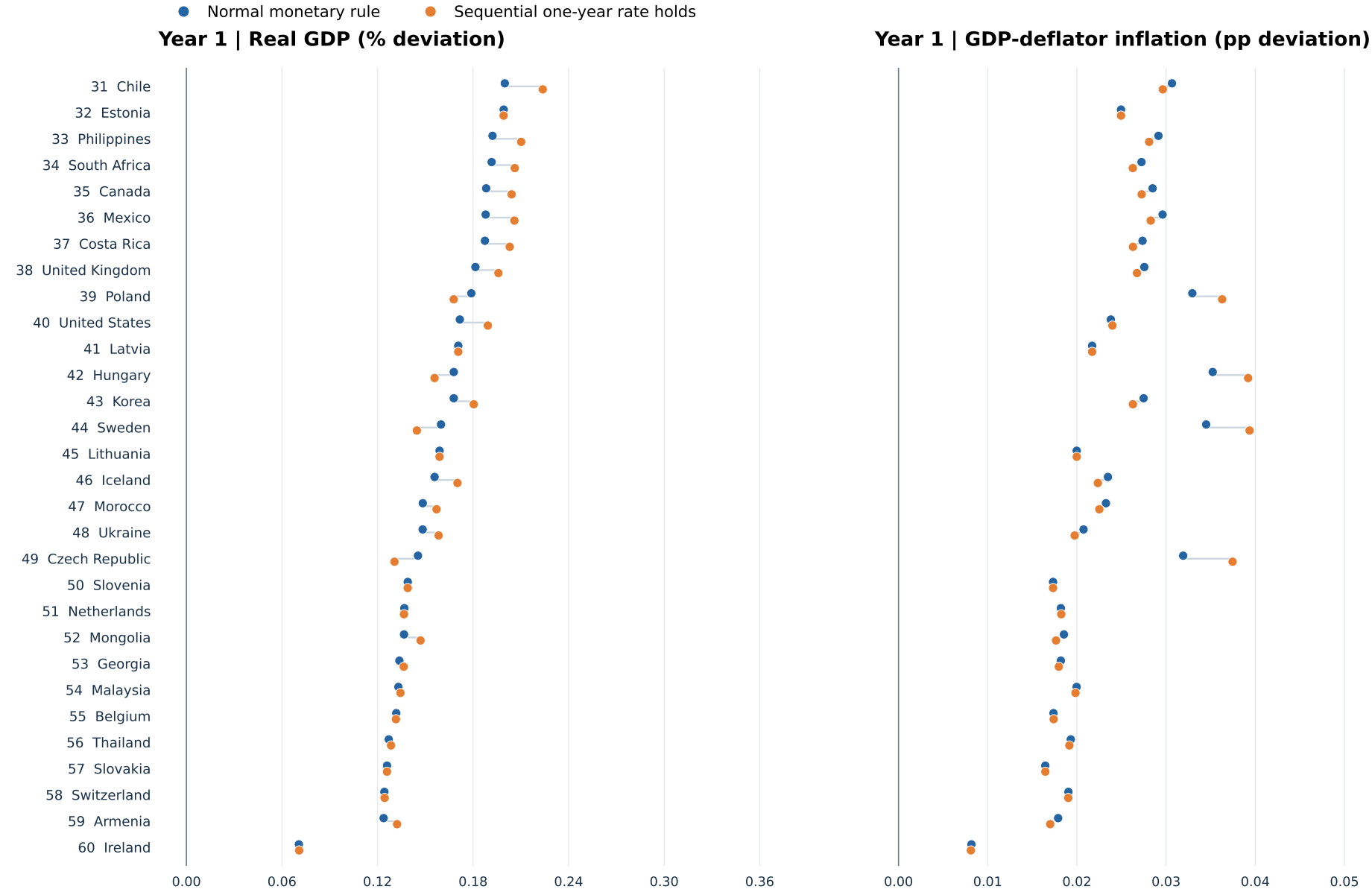


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General transfers

YEAR 1 | RANKS 31-60

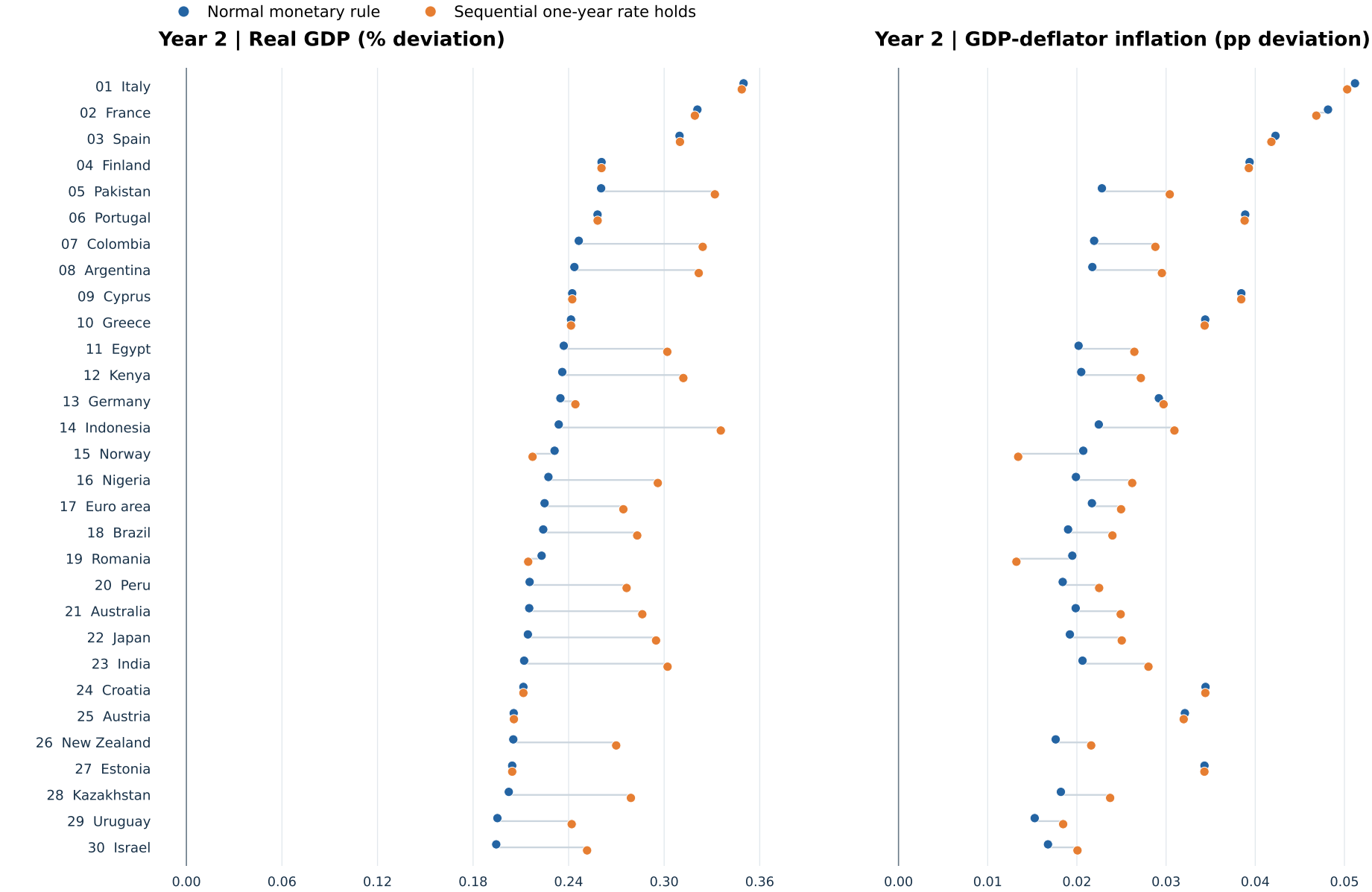


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General transfers

YEAR 2 | RANKS 01-30

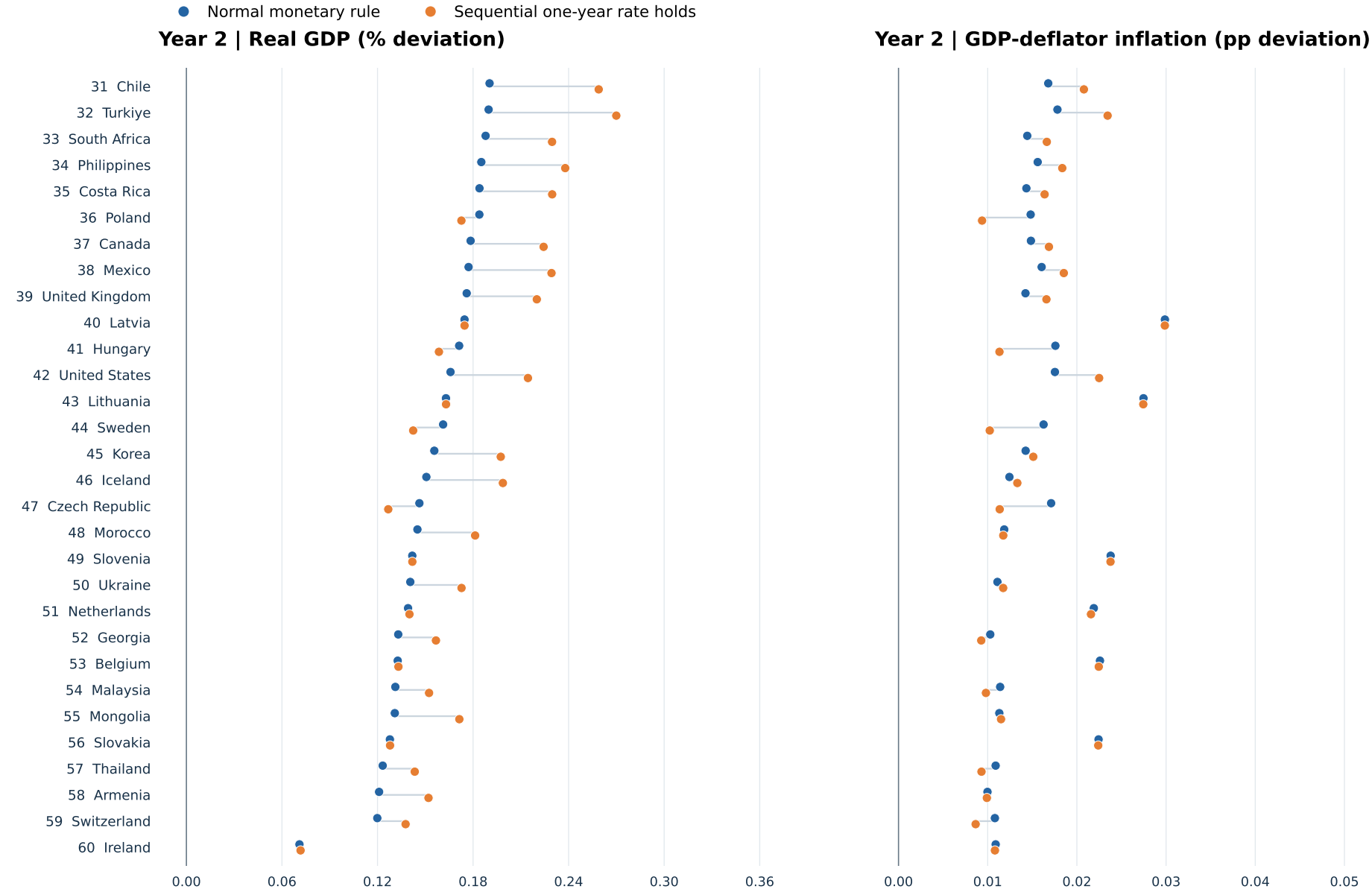


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General transfers

YEAR 2 | RANKS 31-60



Ranked by the Year-2 GDP response under the normal monetary rule (highest to lowest); the inflation panel keeps the same order.

Harmonized nominal adjustment costs in every model region. Each fiscal easing equals 1% of baseline GDP in Years 1 and 2. The euro-area aggregate overlaps its members.

B. Colombia: an exchange-rate and price-index diagnostic

The same 100 basis-point country risk-premium shock is run in Colombia with annual persistence 0.7. Nominal rigidities, the policy rule and all other settings are retained. No additional inflation-expectations shock is imposed (Table B.1).

Table B.1: Colombia: responses to a 100 basis-point country risk-premium shock

Response	Unit	Year 1	Year 2
Real GDP	%	-0.33	-0.65
Consumption	%	-1.28	-1.66
Private investment	%	-2.72	-3.10
GDP deflator inflation	pp	-0.28	0.08
Headline inflation	pp	0.09	0.01
Wage inflation	pp	-0.21	-0.28
Nominal depreciation vs USD	%	2.08	1.45
Net worth tradables	%	-2.71	-1.32
Net worth nontradables	%	-5.42	-3.16

The first-year GDP-deflator response is about -0.28 percentage points, while headline inflation rises by about 0.09 points. The accounting reconciliation in Table B.2 shows why excluding imports from direct GDP coverage does not eliminate the exchange-rate channel.

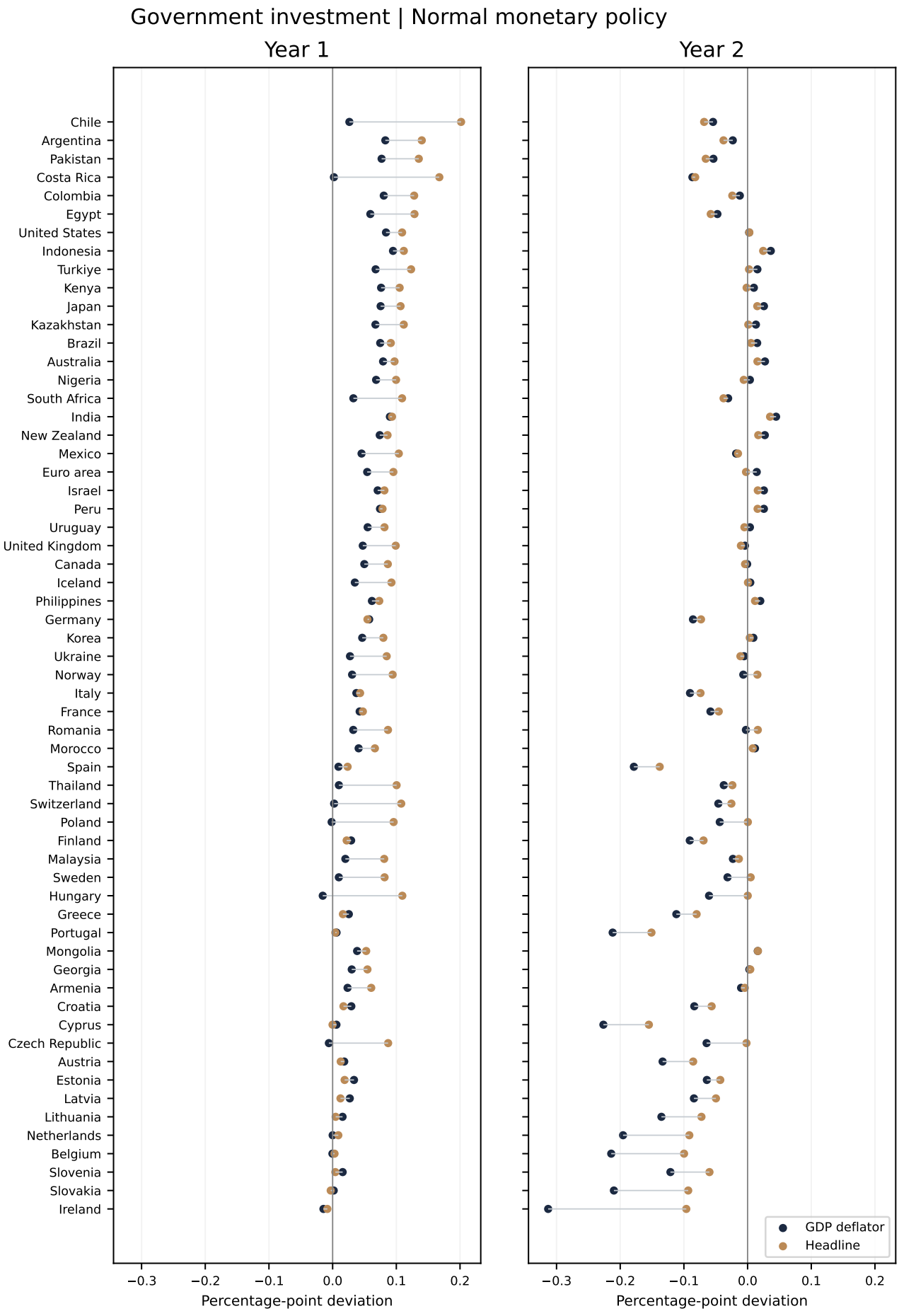
Table B.2: Colombia: accounting reconciliation of the Year-1 GDP-deflator response

Price component	GDP weight	Price response	Contribution
Consumption-price before VAT	0.687	0.095	0.065
Investment-goods	0.138	0.019	0.003
Government-purchase	0.172	0.057	0.010
Export-price	0.184	0.110	0.020
Import-price	-0.182	2.055	-0.373

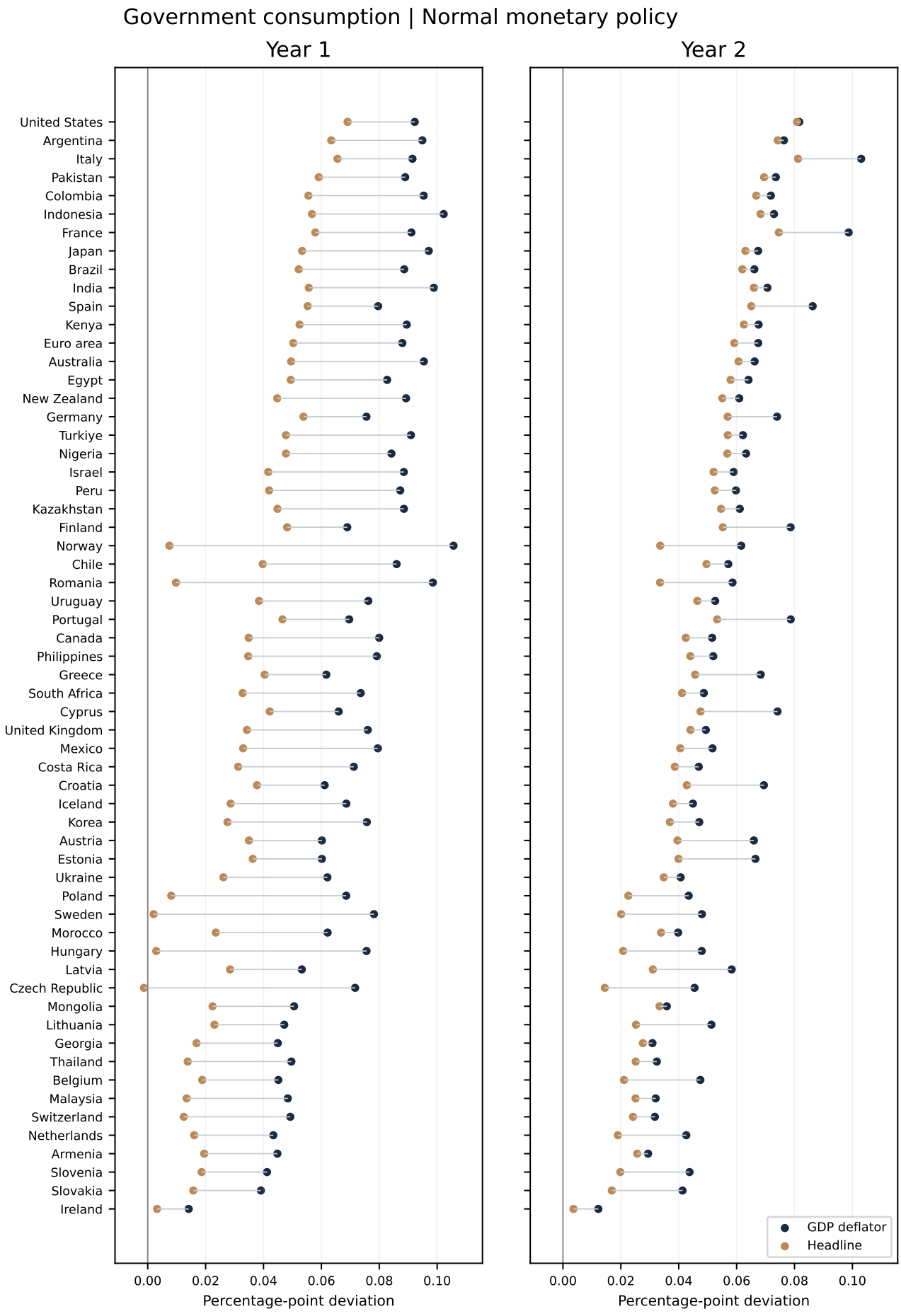
Price responses and contributions are in percentage points. The import term contributes about -0.37 points; the other terms contribute about $+0.10$ points. These signed expenditure-price contributions reconcile exactly to the GDP-deflator response at first order. They are accounting terms, not independently identified causal effects of the exchange rate. VAT is unchanged in this experiment.

C. Headline and GDP-deflator comparisons

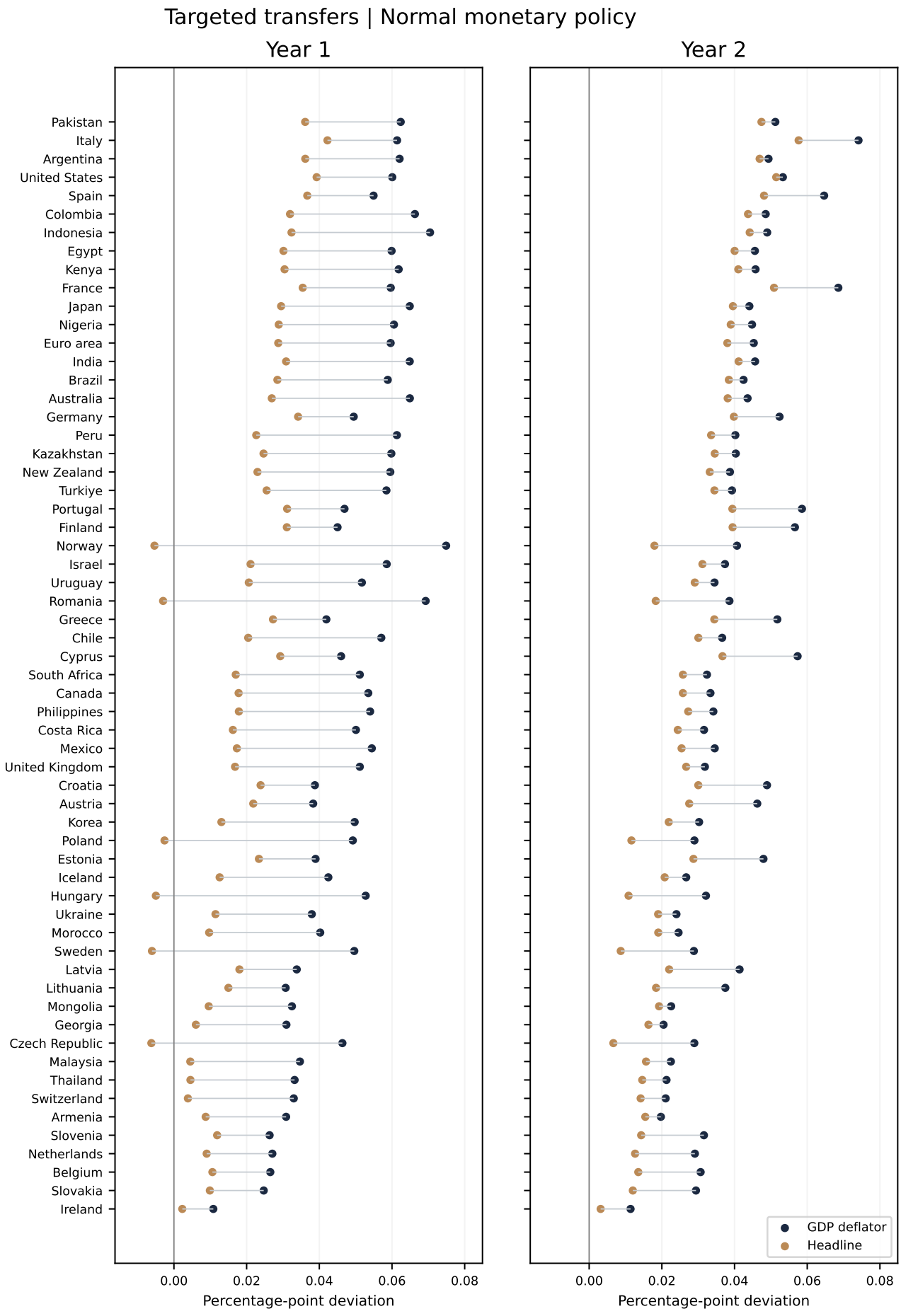
These charts compare the two measures under normal monetary policy. Each instrument has Year-1 and Year-2 panels in the same country order. The GDP deflator uses the source GDP valuation, excluding the separate VAT wedge; headline inflation includes VAT. Negative values mean inflation below baseline, not necessarily a negative inflation rate.



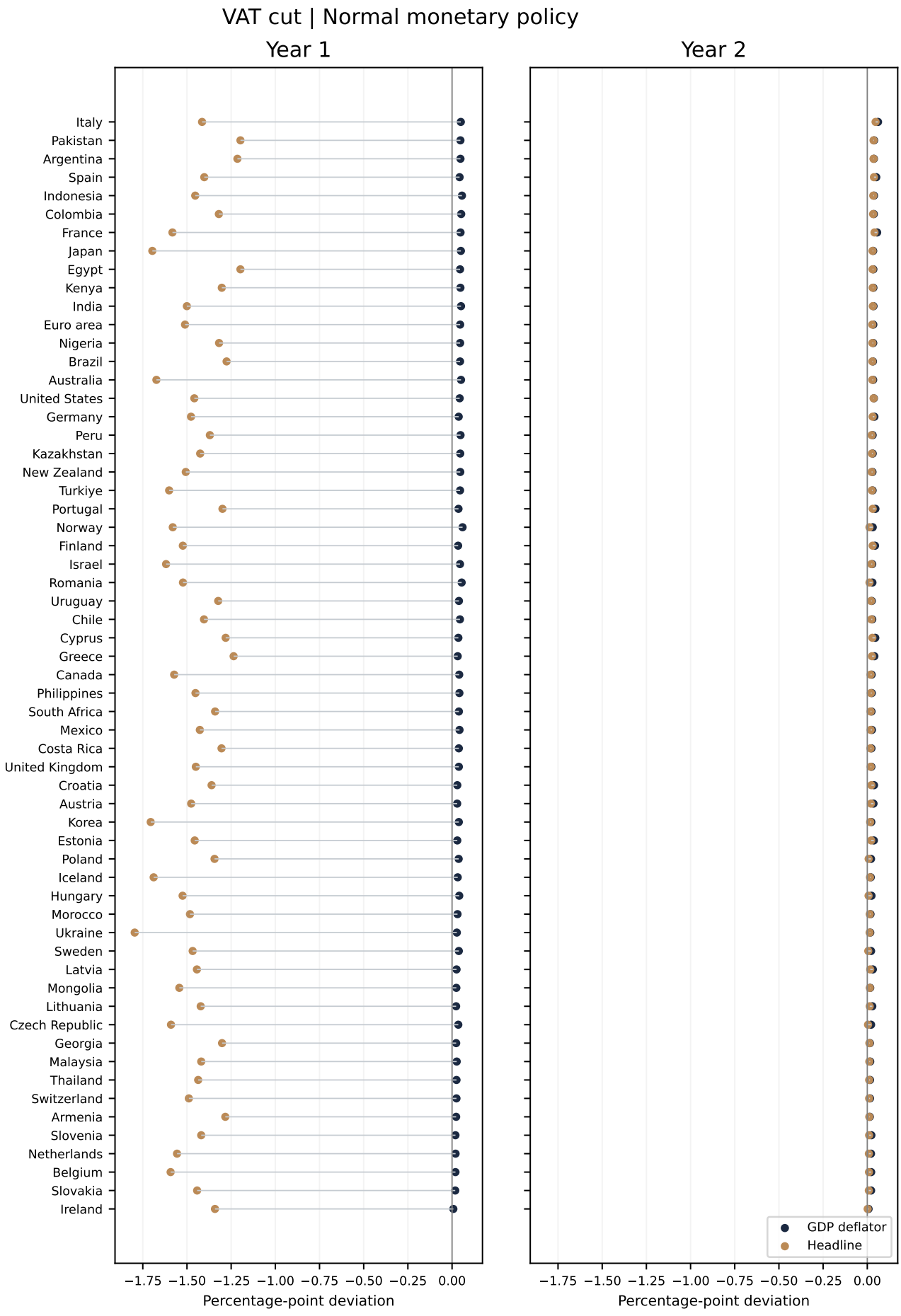
Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.



Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.



Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.



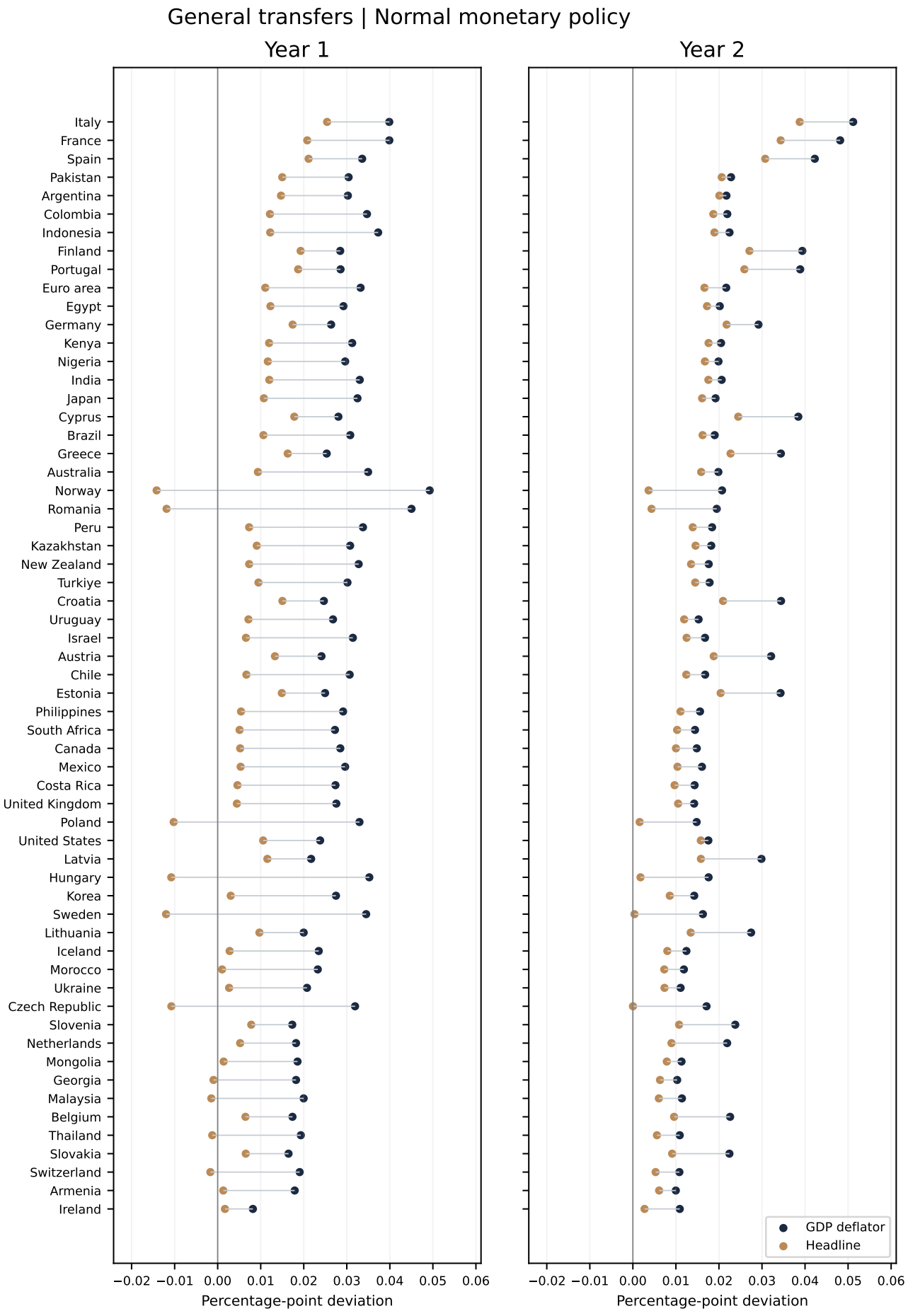
Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.



Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.



Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.

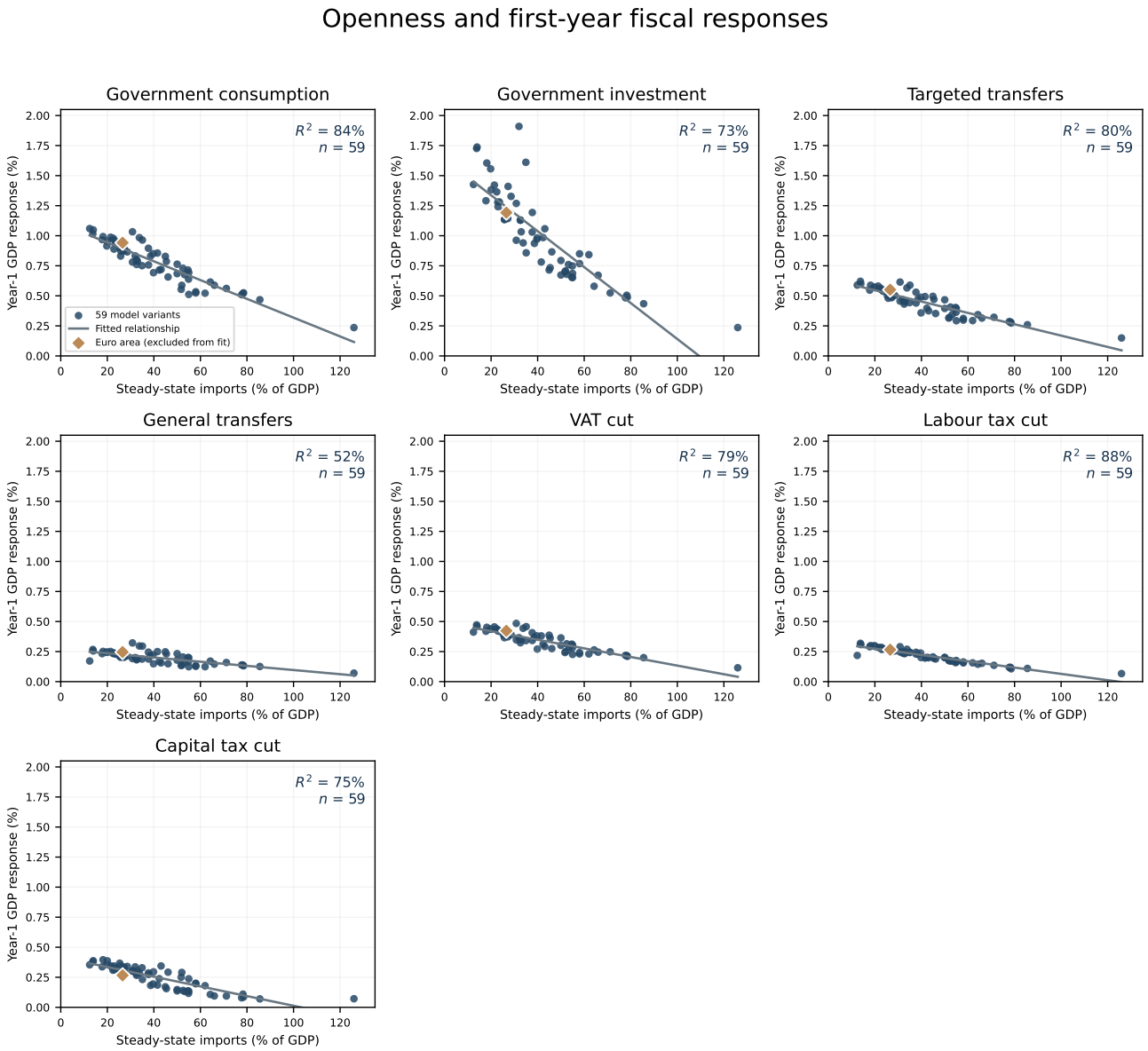


Same country order in both panels, ranked by Year-1 GDP response.
GDP deflator uses source valuation, excluding the separate VAT wedge.

D. Openness across the seven fiscal instruments

These panels repeat the imports/GDP comparison for each instrument using Year-1 GDP responses and normal monetary policy. Every fit uses the 59 model variants and an intercept. The euro-area aggregate is plotted separately. The statistics describe model-output variation; they do not identify a causal share of multiplier differences.

Figure D.1: Year-1 GDP response and imports/GDP, all seven instruments, normal monetary policy



59 model variants in each fit; euro-area aggregate shown separately. Normal policy; harmonized calibration.