Has the Recession Started?

Pascal Michaillat, Emmanuel Saez

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To answer this question, we develop a new Sahm-type recession indicator that combines vacancy and unemployment data. The indicator is the minimum of the Sahm indicator—the difference between the 3-month trailing average of the unemployment rate and its minimum over the past 12 months—and a similar indicator constructed with the vacancy rate—the difference between the 3-month trailing average of the vacancy rate and its maximum over the past 12 months. We then propose a two-sided recession rule: When our indicator reaches 0.3pp, a recession may have started; when the indicator reaches 0.8pp, a recession has started for sure. This new rule is triggered earlier than the Sahm rule: on average it detects recessions 1.4 months after they have started, while the Sahm rule detects them 2.6 months after their start. The new rule also has a better historical track record: it perfectly identifies all recessions since 1929, while the Sahm rule breaks down before 1960. With August 2024 data, our indicator is at 0.54pp, so the probability that the US economy is now in recession is 48%. In fact, the recession may have started as early as April 2024.

Michaillat: University of California, Santa Cruz. Saez: University of California, Berkeley. We thank Megan Bailey, Austin Brown, Richard Crump, Brian Horrigan, Manfred Keil, Edward Nelson, Thomas Philips, Jack Schannep, and Pawel Skrzypczynski for helpful comments.

1. Introduction

Has the US economy entered a recession? To answer the question, this note develops a new Sahm (2019)-type recession indicator that combines data on job vacancies and unemployment.

The indicator is the minimum of the Sahm indicator—the difference between the 3-month trailing average of the unemployment rate and its minimum over the past 12 months—and a similar indicator constructed with the vacancy rate—the difference between the 3-month trailing average of the vacancy rate and its maximum over the past 12 months. It then proposes a new recession rule: a recession may have started when the minimum indicator reaches 0.3pp.

This new indicator is triggered earlier than the Sahm indicator—which only uses unemployment data. It detects recessions with a lag of 1.4 months on average, while the Sahm indicator detects them with a lag of 2.6 months. The new indicator also has a better historical track record. It perfectly identifies all recessions since 1929, while the Sahm indicator breaks down before World War 2.

A one-sided recession rule such as the Sahm (2019) rule tells us whether a recession might have started. To know what is the likelihood that a recession has started, we propose a two-sided recession rule. The bottom threshold is the lowest value that generates no false positives over 1960–2022 (this is how the threshold of 0.5pp is determined in the Sahm rule). The top threshold is the highest value that generates no false negatives over 1960–2022. The two-sided rule is as follows. When the minimum indicator is below 0.3pp, the recession has not started. When the minimum indicator is between 0.3pp and 0.8pp, the recession might have started. And when the minimum indicator is above 0.8pp, the recession has started for sure.

Our two-sided recession rule says that the US economy might have entered a recession as early as April 2024. With August 2024 data, the minimum indicator is at 0.54pp, so the probability that the US economy is now in recession is $(0.54 - 0.3)/(0.8 - 0.3) = 48\%$.

2. Construction of the recession indicator

In this section we construct our recession indicator by combining unemployment and vacancy data for the United States, 1960–2024.

2.1. Unemployment, vacancy, and recession data

The unemployment rate u, vacancy rate v, and recession dates that we use in the analysis are plotted in figure 1. These unemployment and vacancy data are widely used in macroeconomics (Daly et al. 2012; Diamond and Sahin 2015; Elsby, Michaels, and Ratner 2015;

Barnichon and Figura 2015; Barlevy et al. 2024; Michaillat and Saez 2021, 2024b).

Unemployment rate. The unemployment rate is the number of jobseekers measured by the US Bureau of Labor Statistics (2020b) from the Current Population Survey (CPS), divided by the civilian labor force constructed by the US Bureau of Labor Statistics (2024a) from the CPS. This is the standard, official measure of unemployment, labelled U3 by the US Bureau of Labor Statistics (2023).[1]

Vacancy rate. The vacancy rate is derived from two different sources because there is no continuous vacancy series over the period. For 1960–2000, we use the vacancy rate constructed by Barnichon (2010). This series is based on the Conference Board's help-wanted advertising index, adjusted to account for the shift from print advertising to online advertising in the 1990s. The Conference Board index aggregates help-wanted advertising in major metropolitan newspapers in the United States. It serves as a reliable proxy for job vacancies (Abraham 1987; Shimer 2005). For 2001–2024, we use the number of job openings measured by the US Bureau of Labor Statistics (2024c) from the JOLTS, divided by the civilian labor force constructed by the US Bureau of Labor Statistics (2024a) from the CPS. To best align labor force and vacancy data, we follow Michaillat and Saez (2024b) and shift forward by one month the number of job openings from JOLTS.[2] We then splice the two series to create a continuous vacancy rate for 1960–2024. The two series are perfectly aligned because Barnichon (2010) used the JOLTS data to scale the Conference Board index and translate it into a vacancy rate (which was possible because the Conference Board and JOLTS series overlap in the early 2000s).

Recession dates. The National Bureau of Economic Research (2023) identifies the peaks and troughs of US business cycles. Following their convention, we set the first month of the recession as the month following the peak and the last month of the recession as the month of the trough (National Bureau of Economic Research 2022).

[1] The Sahm indicator is constructed with the unemployment rate produced by the US Bureau of Labor Statistics (2024d), which takes the same values as our unemployment rate but is rounded to the first digit (Sahm 2024b). The rounding unnecessarily adds volatility to the indicator, which is especially problematic in the vicinity of the recession threshold. For instance, in July 2024 the Sahm indicator crossed its 0.5pp threshold with the rounded unemployment rate (0.53pp), but not with the unrounded unemployment rate (0.49pp). So here, we simply use the exact, unrounded unemployment rate.

[2] For instance, we assign to December 2023 the number of job openings that the BLS assigns to November 2023. The motivation for this shift is that the number of job openings from the JOLTS refers to the last business day of the month (Thursday 30 November, 2023), while the labor force from the CPS refers to the Sunday–Saturday week including the 12th of the month (Sunday 10 December 2023 to Saturday 16 December 2023) (US Bureau of Labor Statistics 2020a, 2024b). So the number of job openings refers to a day that is closer to next month's CPS reference week than to this month's CPS reference week.

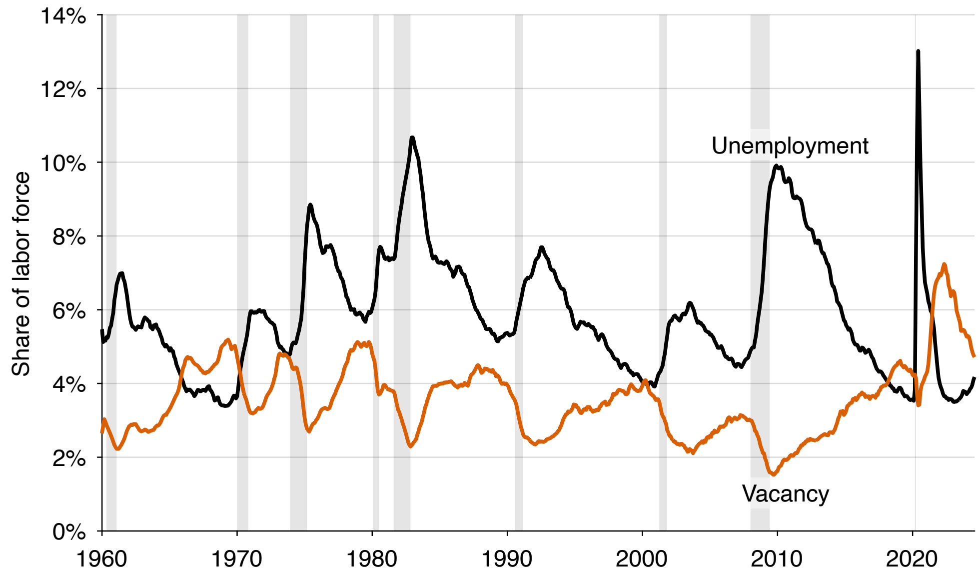


FIGURE 1. Unemployment and vacancy rates in the United States, 1960–2024

Note: The unemployment rate is computed from data produced by the US Bureau of Labor Statistics (2020b, 2024a). The vacancy rate is computed from data produced by Barnichon (2010) and the US Bureau of Labor Statistics (2024a,c). The unemployment and vacancy rates are 3-month trailing averages of monthly series. The gray areas are recessions dated by the National Bureau of Economic Research (2023).

Data availability. The data required to construct our indicator for any given month are released on the first week of the following month, usually on Tuesday for the JOLTS data and Friday for the CPS data.[3] So the indicator can be constructed in real time. The number of job openings released by the BLS is preliminary and is updated one month after its first release. Therefore, the real-time value of indicator should be seen as preliminary, before it receives its final update on month later. By contrast, the official dates of recessions are published after a long and variable delay by the Business Cycle Dating Committee of the National Bureau of Economic Research (2021).

2.2. Definition of the indicator

We start from the Sahm (2019) recession indicator. That indicator is computed in two steps. The first step is taking the 3-month trailing average of the unemployment rate. The second step is taking the difference between the average unemployment rate and its minimum over the past 12 months.

Formally, we denote the monthly unemployment rate by $u(t)$. The first step produces

[3]This is another advantage of shifting the number of job openings from the JOLTS forward by one month. We have access to the vacancy and unemployment rates required to compute our real-time indicator one the same week, as soon as the month is over.

the 3-month trailing average:

$$\bar{u}(t) = \frac{u(t) + u(t-1) + u(t-2)}{3}.$$

The second step takes the difference between the trailing average and its 12-month trailing minimum:

$$\hat{u}(t) = \bar{u}(t) - \min_{0 \leq s \leq 12} (\bar{u}(t-s)). \tag{1}$$

The variable $\hat{u}(t)$ is the unemployment indicator. The unemployment indicator is always positive: it is zero when unemployment is decreasing but it turns strictly positive once unemployment start rising.[4]

Our indicator is based on the same idea, but it combines vacancy and unemployment data to be able to detect recessions more quickly and more robustly. Indeed, job vacancies start falling quickly at the onset of recessions, when unemployment starts rising (figure 1). Requiring that both rise gives a more accurate and—maybe counterintuitively—more rapid recession signal.

We therefore construct a vacancy indicator by taking the 3-month trailing average of the vacancy rate, and then by taking the difference between the average vacancy rate and its maximum over the past 12 months. Formally, we denote the monthly vacancy rate by $v(t)$. The first step produces the 3-month trailing average:

$$\bar{v}(t) = \frac{v(t) + v(t-1) + v(t-2)}{3}.$$

The second step takes the difference between the trailing average and its 12-month maximum:

$$\hat{v}(t) = \max_{0 \leq s \leq 12} (\bar{v}(t-s)) - \bar{v}(t). \tag{2}$$

The variable $\hat{v}(t)$ is the vacancy indicator. It is always positive: zero when vacancies are increasing but strictly positive once vacancies start falling.

Finally, the minimum indicator that we will use to identify recession starts is the minimum of the two previous indicators:

$$x(t) = \min(\hat{u}(t), \hat{v}(t)). \tag{3}$$

[4] The standard Sahm indicator is sometimes negative (Sahm 2024b). This is because the trailing minimum is taken over the previous 12 months without including the current month: $\hat{u}(t) = \bar{u}(t) - \min_{1 \leq s \leq 12}(\bar{u}(t-s))$ (Sahm 2023). By contrast, our indicators are always nonnegative, which is neater without affecting the results.

2.3. Construction of the indicator for the United States

Using the unemployment and vacancy data from figure 1, we compute an unemployment indicator using formula (1) (black line in figure 2A). Then we construct the vacancy indicator using (2) (orange line in figure 2A). Figure 2A also plots the threshold that Sahm (2019) proposes to identify recession starts: 0.5pp. The unemployment indicator with a threshold of 0.5pp works perfectly over 1960–2022: it has no false positive (predicted recessions that are not actual recessions) and no false negative (actual recessions that are not predicted as recessions).

In July 2024, the unemployment indicator was just below the 0.5pp threshold, at 0.49pp. But in August 2024, the unemployment indicator crossed the 0.5pp threshold, reaching 0.54pp. So that indicator now suggests that a recession might have started. That is, the Sahm rule says that the United States might have entered a recession in August 2024.

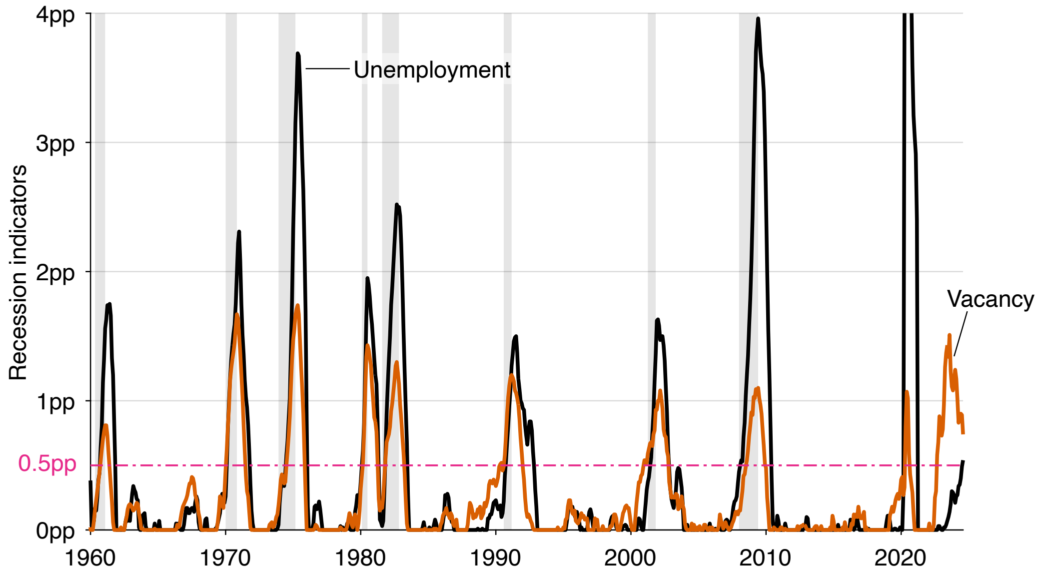
To know whether a recession has already started, we would need a faster indicator, that predicts recessions earlier. To have a faster recession indicator, we would need to be able to lower the 0.5pp threshold without generating false positives. But this is not possible because in June 2003 the unemployment indicator reached 0.5pp but there was no recession (figure 2A).

Looking at figure 2A, the vacancy indicator appears broadly as fast as the unemployment indicator. It would call some recessions slightly earlier (in 1990 and 2001) and some recessions slightly later (in 2008). In the aftermath of the pandemic, the vacancy indicator started rising in 2022 and peaked in 2023, so it would have delivered a a prediction that was so early as to be misleading. This might be due to the extreme outward shift of the Beveridge curve during the pandemic (Michaillat and Saez 2024b). This shift lead to elevated values of the vacancy rate during that period, and therefore elevated values of the vacancy indicator.

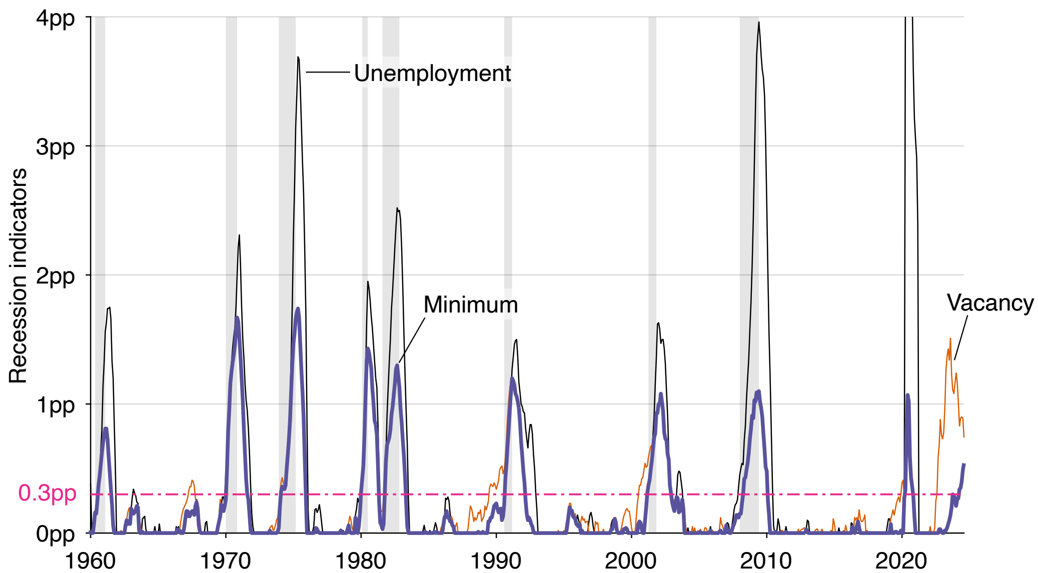
But the main advantage of the vacancy indicator is that it does not present the same uninformative blips as the unemployment indicator. For instance, there is no problematic blip in June 2003 (the vacancy indicator is not 0 but it is much lower than the unemployment indicator). Of course, it presents other uninformative blips. For instance it has a peak in July 1967 while there was no recession then.[5]

To have a more accurate recession indicator, we therefore construct a new indicator that is the minimum of the unemployment and vacancy indicators. Given that the blips of the unemployment and vacancy indicators do not occur at the same time, taking the minimum of the two indicators will eliminate these blips and allow us to lower the detection threshold below 0.5pp. Of course the minimum of the two indicators will be slower to increase—since it can only increase when both indicators rise. But the reduction in threshold afforded by the higher accuracy will be so large that the minimum indicator

[5] Friedman and Schwartz did argue that a minirecession occurred in 1966–1967 (Nelson 2020, pp. 102–110).



A. Unemployment and vacancy indicators



B. Minimum indicator

FIGURE 2. Real-time recession indicators in the United States, 1960–2024

Note: The unemployment indicator is computed with (1). The vacancy indicator is computed with (2). The minimum indicator is computed with (3). The unemployment and vacancy rates used to compute the indicators come from figure 1. The gray areas are NBER-dated recessions. The unemployment indicator was proposed by Sahm (2019).

TABLE 1. Predicted recession start dates in the United States, 1960–2022

NBER start dates		Unemployment indicator > 0.5pp		Minimum indicator > 0.3pp	
Year	Month	Year	Month	Year	Month
1960	5	1960	10	1960	8
1970	1	1970	3	1970	2
1973	12	1974	7	1974	2
1980	2	1980	2	1980	1
1981	8	1981	11	1981	11
1990	8	1990	10	1990	9
2001	4	2001	6	2001	3
2008	1	2008	2	2008	5
2020	3	2020	4	2020	4
Average prediction delay:		2.6 months		1.4 months	

The recession starts are provided by the National Bureau of Economic Research (2023). The unemployment and minimum indicators and the thresholds are displayed in figure 2. The Sahm (2019) rule is that unemployment indicator > 0.5pp.

will detect recession faster on average.

The minimum indicator, constructed from formula (3), is plotted on figure 2B between 1960–2024. Because the blips from the unemployment and vacancy indicators are eliminated, we can lower the threshold to call recessions to 0.3pp. With such a threshold, our minimum indicator works perfectly over 1960–2022: it has no false positive (predicted recessions that are not actual recessions) and no false negative (actual recessions that are not predicted as recessions). We could not lower the threshold because in 2003 the minimum indicator reached 0.3pp but there was no recession.

3. Predicted recession dates and average prediction delay

The minimum indicator combined with a threshold of 0.3pp has a prefect track record over 1960–2022, just like the unemployment indicator proposed by Sahm (2019). The two indicators identify the 9 recessions that occurred during the period, without any false positives (table 1). The stories behind these recessions are well known. For instance:

- The recession that started in March 2020 was caused by the coronavirus pandemic.
- The recession that started in January 2008 followed the global financial crisis.
- The recession that started in April 2001 followed the burst of the dot-com bubble.
- The recession that started in August 1990 followed the Iraqi invasion of Kuwait and associated oil price shock.
- The recessions that started in February 1980 and August 1982 are associated with the Volcker disinflation's tight monetary policy.

Furthermore, the minimum indicator is able to identify recessions faster than the unemployment indicator (table 1). On average, the minimum indicator identifies recession starts with a delay of 1.4 months compared to the actual recession starts determined by the National Bureau of Economic Research (2023). This is more than a month faster than the unemployment indicator, which identifies recession starts with a delay of 2.6 months. The minimum indicator is always faster than the unemployment indicator, except in 2008 when it called the Great Recession 3 months later than the unemployment indicator (in April 2008 instead of January 2008). The slight delay is because job vacancies took some time to drop at the onset of the Great Recession (the delay is visible in figures 1 and 2A).

Of course, it is not surprising that the recession starts obtained with these indicators lag the NBER recession starts, because the NBER recession starts are backdated. They are identified with hindsight, not in real time, which is what our indicators try to do (National Bureau of Economic Research 2021).

4. Current recession probability

As we know, and as we can see on figure 2A, the unemployment indicator crossed 0.5pp in August 2024, implying that a recession might have started.

What does the minimum indicator say? The minimum indicator actually crossed the 0.3pp threshold between March and April 2024, indicating that a recession might have started a few months ago (figure 3). It is not surprising that the minimum indicator is able to call the current recession earlier than the unemployment indicator, since the minimum indicator tends to be faster than the unemployment indicator. In August 2024, the minimum indicator reached 0.54pp, so it is well above the recession threshold of 0.3pp.

In fact, we can add a second threshold to our analysis to be able to compute the probability that the US economy has entered a recession. The current debate about whether the Sahm rule has been triggered or not, and so whether the US economy has entered a recession or not, comes from the fact that the current analysis only uses one single threshold. This threshold is the lowest threshold such that the indicator does not trigger false positives over 1960–2022. This threshold is 0.5pp in the case of the unemployment indicator (Sahm rule), and 0.3pp in the case of the minimum indicator. The threshold cannot be lowered below 0.3pp because the minimum indicator reached 0.28pp in 2003 while there was no recession then.

But we can also produce another threshold, which is the highest threshold such that the indicator does not produce false negatives over 1960–2022. In the case of the minimum indicator, this threshold is 0.8pp (figure 3). This threshold, which is the highest value that the indicator can reach before we are bound to acknowledge that the economy is in a recession. This conservative threshold cannot be raised above 0.8pp because the minimum indicator reached 0.81pp in 1960, which was a recession year.

With the two thresholds, 0.3pp and 0.8pp, we have a two-sided rule. When the minimum

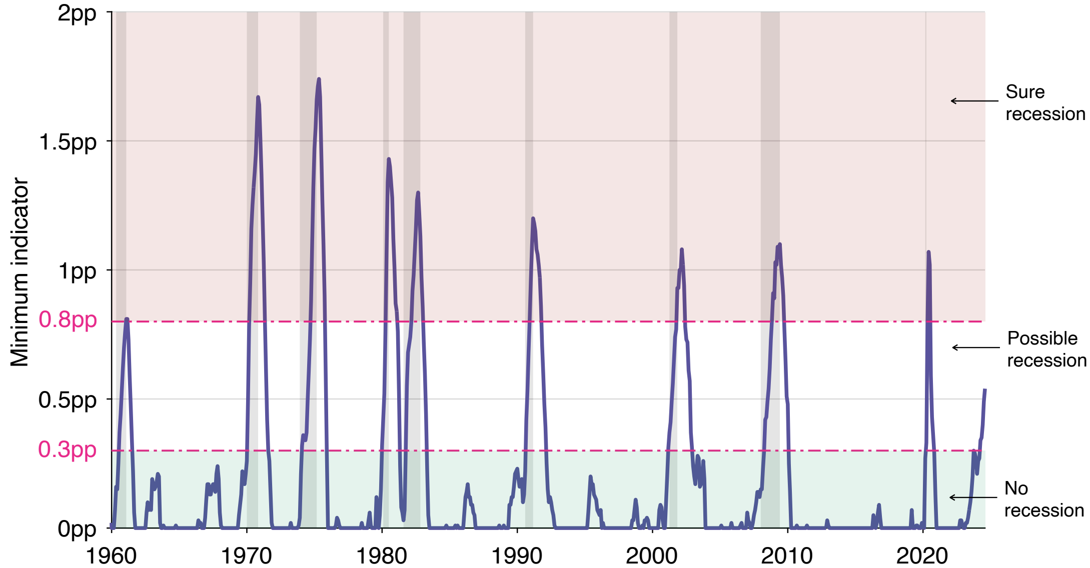


FIGURE 3. Minimum indicator and two-sided recession rule in the United States, 1960–2024

Note: The minimum indicator is computed with (3). The unemployment and vacancy rates used to compute the indicator come from figure 1. The gray areas are NBER-dated recessions. When the indicator is below 0.3pp, a recession has not started. When the indicator is above 0.8pp, a recession has started for sure. When the indicator is in the 0.3pp–0.8pp band, a recession is likely to have started.

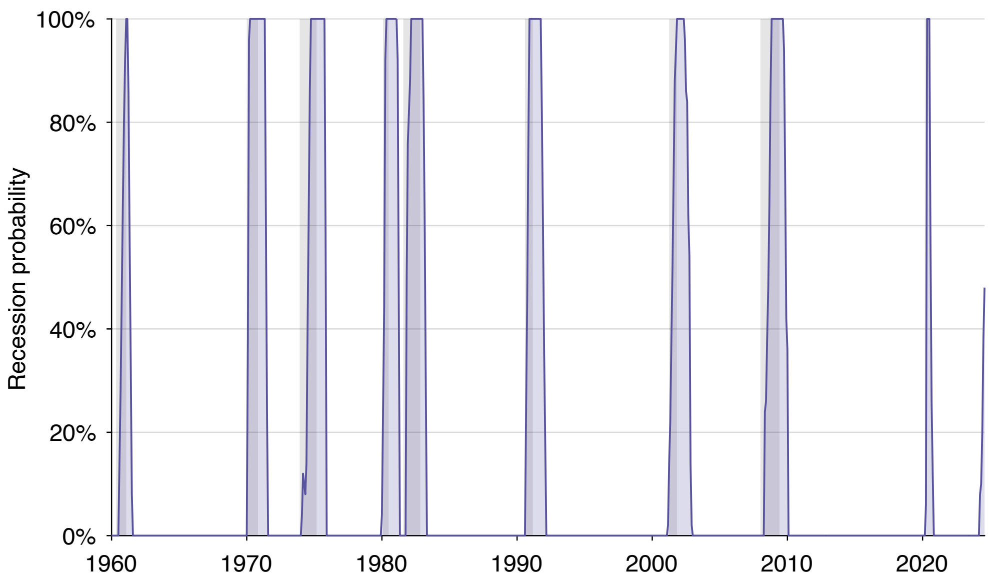


FIGURE 4. Recession probability in the United States, 1960–2024

Note: The recession probability is given by formula (4). The formula uses the minimum indicator and thresholds displayed in figure 3. The gray areas are NBER-dated recessions.

indicator is below 0.3pp, the rule says that the US economy is not in a recession. When the indicator is above 0.8pp, the rule says that the US economy is in a recession for sure. When the indicator is between 0.3pp and 0.8pp, the two-sided says that a recession might have started.

Furthermore, we can compute the probability that the recession is recession has any point when the indicator is in the 0.3pp–0.8pp band. The probability simply reflects the share of the 0.3pp–0.8pp band that has been covered by the indicator. For instance, in August 2024, the minimum indicator is 0.54pp, so the probability that the US economy is in a recession is $(0.54 - 0.3)/(0.8 - 0.3) = 48\%$ (figure 4). In general, when the minimum indicator has a value of $x(t) \in [0.3, 0.8]$, the probability that the recession has started is

$$p(t) = \frac{x(t) - 0.3}{0.8 - 0.3}. \tag{4}$$

The recession probability is a byproduct of our ignorance, which is caused by the dearth of macroeconomic data. We start from the presumption that there is a unique threshold that can separate recessions from non-recessions. Any time our indicator crosses the threshold from below, the economy enters a recession. The challenge is that there is not enough data to identify this threshold. We know that the threshold is above 0.3pp because the indicator has crossed all the values below 0.3pp without triggering a recession. We also know that the indicator is below 0.8pp because there are recessions in the 1960–2024 period that have not strictly crossed 0.8pp. The latent threshold must be between 0.3pp and 0.8pp. We cannot narrow the range further because we have not observed more recessions. Finally, assuming that this unobservable recession threshold is uniformly distributed over 0.3pp–0.8pp, we compute the probability to be in a recession as the probability that the indicator has crossed the latent threshold. This probability is given by (4).

5. Historical track record

Next, we examine the historical performance of our minimum indicator. We extend the analysis to 1929–1959, so that we cover almost one hundred years of US business cycles: 1929–2024. Our indicator continues to perform well in the past: it also perfectly identifies all the recessions of the 1929–1959 period.

5.1. Historical data

Unemployment rate. For 1929–1947, the monthly unemployment rate is constructed by Petrosky-Nadeau and Zhang (2021). They extrapolate Weir (1992)'s annual unemployment series to a monthly series using monthly unemployment rates compiled by the National Bureau of Economic Research (NBER). For 1948–1959, the unemployment rate is computed

TABLE 2. Predicted recession start dates in the United States, 1929–1959

NBER start dates		Minimum indicator > 0.3pp	
Year	Month	Year	Month
1929	9	1930	2
1937	6	1937	12
1945	3	1945	9
1948	12	1949	1
1953	8	1953	10
1957	9	1957	7

The recession starts are provided by the National Bureau of Economic Research (2023). The minimum indicator and the threshold are displayed in figure 5A.

just as in the modern period: it is the number of jobseekers divided by the civilian labor force, both measured by the US Bureau of Labor Statistics (2020b, 2024a) from the CPS.

Vacancy rate. For 1929–1950, the vacancy rate is based on help-wanted index created by the Metropolitan Life Insurance Company. This index aggregates help-wanted advertisements from newspapers across major US cities. It is considered a reliable proxy for job vacancies (Zagorsky 1998). The MetLife index is scaled to align with Barnichon (2010)'s vacancy rate at the end of 1950, effectively translating the index into a vacancy rate.[6] For 1951–1959, we use again the vacancy rate produced by Barnichon (2010).

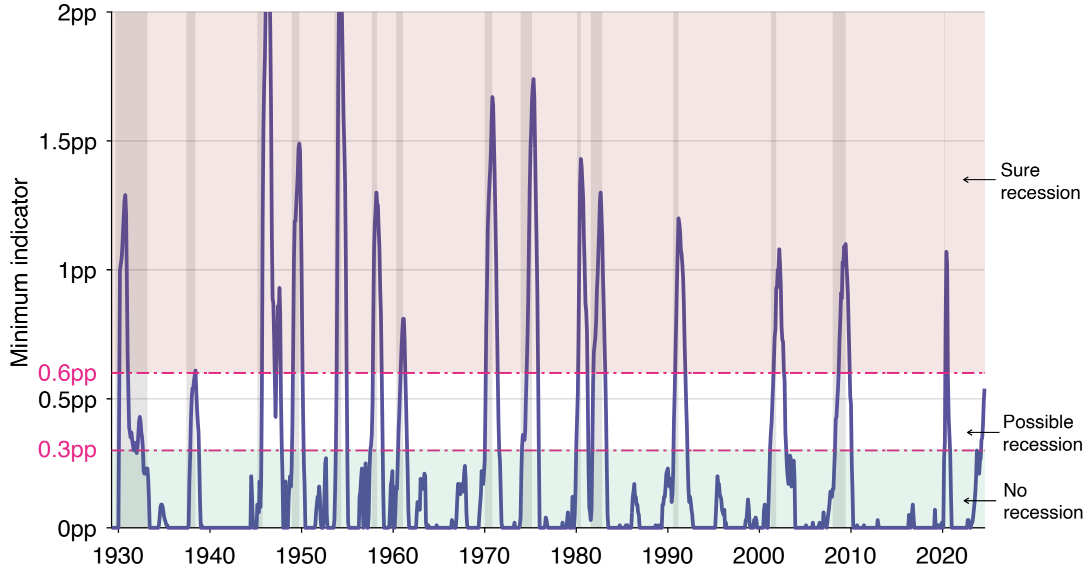
5.2. Historical predictions

Our minimum indicator has a perfect historical track record. Using a threshold of 0.3pp to announce the possible start of a recession, the minimum indicator identifies the 15 recessions of the 1929–2022 period without producing any false positive (figure 5). Over the entire 1929–2022 period, on average, the minimum indicator identifies recession starts with a delay of 2.1 months compared to the actual recession starts determined by the National Bureau of Economic Research (2023) (table 2).

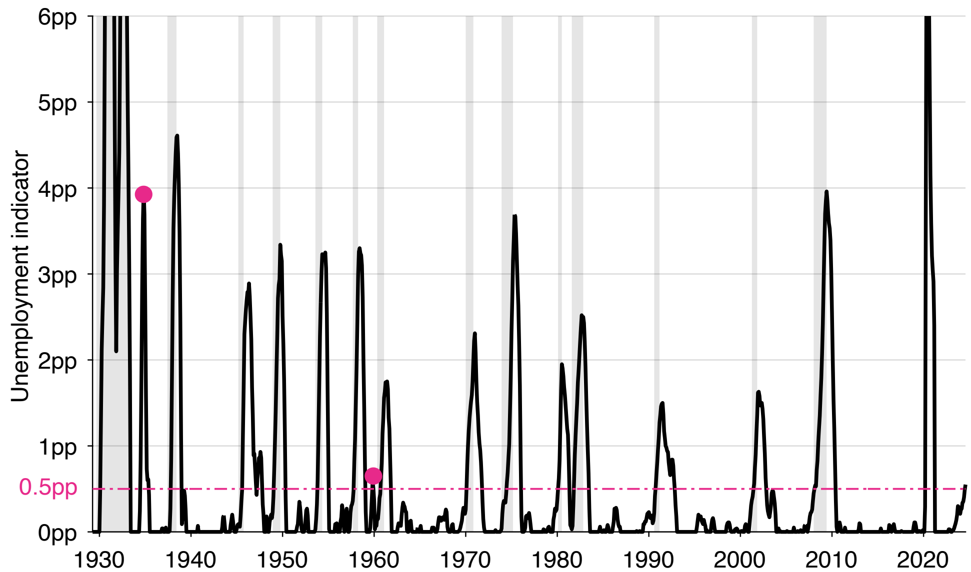
Because of the recession starting in 1937, however, it is necessary to lower the top threshold to avoid producing a false negative. The highest possible threshold that does not produce any false negatives over 1929–2022 is 0.6pp (figure 5). Using this lower top threshold, the probability that the US has entered a recession in August 2024 climbs to $(0.5 - 0.3)/(0.6 - 0.3) = 67\%$.

The Sahm (2019) rule is that a recession has started when the unemployment indicator reaches 0.5pp. We saw that the rule works perfectly for 1960–2022 (table 1). But the rule

[6] Petrosky-Nadeau and Zhang (2021) produce a vacancy series that starts in 1919 and an unemployment series that starts in 1890. We begin our analysis in 1929, however, because there are some limitations with the prior data (Michaillat and Saez 2024b, section 3B).



A. Minimum indicator and two-sided recession rule



B. Comparison with the Sahm (2019) rule

FIGURE 5. Historical record of the minimum indicator in the United States, 1929–2024

Note: The minimum indicator is computed with (3). The unemployment rate used to compute the indicator come from Petrosky-Nadeau and Zhang (2021) and US Bureau of Labor Statistics (2020b, 2024a). The vacancy rate used to compute the indicator come from Petrosky-Nadeau and Zhang (2021), Barnichon (2010), and US Bureau of Labor Statistics (2024a,c). The gray areas are NBER-dated recessions. When the minimum indicator is below 0.3pp, a recession has not started. When the minimum indicator is above 0.6pp, a recession has started for sure. When the minimum indicator is in the 0.3pp–0.6pp band, a recession is likely to have started.

breaks down just before 1960 because in 1959 the unemployment indicator reached 0.6pp but there was no recession (figure 5B). This issue is easily fixed, however, by raising the threshold used in the rule to 0.6pp. This would make the rule a little slower at detecting recession starts, but it would allow the rule to continue working until World War 2.

Before World War 2, the unemployment indicator faces a much bigger problem and breaks down (figure 5B). The reason is that in 1934, the unemployment indicator peaked at 4pp but there was no recession. That peak is higher than many later recessionary peaks, and because of it, there are no rules based on the unemployment indicator that can have both no false positives (which would require the threshold to be above 4pp) and no false negatives (which would require the threshold to be below 1.5pp, the peak reached in the 1990 recession). The minimum indicator, on the other hand, continues to work before World War 2. With any threshold between 0.3pp and 0.6pp, the minimum indicator produces no false positive and no false negative between 1929 and 2023 (figure 5A).

6. Relation to other recession indicators

Of course, there already exists numerous algorithms to identify turning points of business cycles (Bry and Boschan 1971; Harding and Pagan 2002, 2006; Stock and Watson 2010, 2014), including in real time (Chauvet and Piger 2008; Hamilton 2011; Keil, Leamer, and Li 2023; Leamer 2024). These algorithms often use many different data series. For example, Stock and Watson (2014) estimate US turning points based on a dataset of 270 monthly time series.

However, Crump, Giannone, and Lucca (2020a) finds that among all data available, labor-market data are the most reliable to date business cycles because they are less noisy and have fewer false positives. Another advantage of labor-market data is that they are less sensitive to recessions than GDP, so their real-time performance is also almost as good as their final performance.

Crump, Giannone, and Lucca (2020b) adds that the unemployment rate, combined with a threshold rule, provides an almost perfect record of identifying the beginning of recessions in the postwar US economy. This explains the long history, current popularity, and overall good performance of rules of that sort, such as of course the rule proposed by Sahm (2019, pp. 77–79). Another rule of that sort is proposed by Schannep (2008, p. 159): it compares the unemployment rate to its cyclical low (determined by hand) and uses a threshold of 0.4pp. Another similar rule was developed by Hatzius and Stehn (2012, pp. 118–120): that rule compares the unemployment rate to its cyclical low (determined by hand) and uses a threshold of 0.35pp. Policymakers have also been using such rules. For instance, Bernanke (2006, appendix 2) compares the unemployment rate to its value 4 quarters earlier and uses a threshold of 0.3pp. They have also been used in the private sector: Goldman Sachs compares the unemployment rate to its cyclical low (determined by hand) and uses a threshold of 0.33pp (Sahm 2024a).

Philips (2024) recently confirmed Crump, Giannone, and Lucca's insight. Philips attempts to improve the performance of the Sahm rule by using the unemployment rate jointly with the slope of the yield curve—a popular recession indicator developed by Harvey (1988, 1989). However, using the yield curve does not much at all: Philips (2024, p. 1) reports that "for reasons I do not understand, it appears that the almost all available information about the state of the economy is encoded in the unemployment rate."

Given the good performance of recession indicators based on the unemployment rate, it is unsurprising that our indicator does well. We are able to improve upon unemployment-only indicators by leveraging two insights from the macroeconomics of slack. First, business cycles are mostly driven by shocks to aggregate demand, which trigger shocks to labor demand (Michaillat and Saez 2015). Therefore, recessions are mostly caused by drop in aggregate demand. Second, such shocks produce negative comovements between unemployment rate and vacancy rate as the economy moves along the Beveridge curve (Michaillat and Saez 2015, 2022, 2024a). Therefore, a recession generally features both a drop in vacancy rate and a rise in unemployment rate. By looking at both unemployment and vacancy data, our indicator therefore gets a less noisy and more reliable signal of recessions than unemployment-only indicators.

In particular, our recession indicator will not be triggered by small or large shifts in the Beveridge curve, which occur every so often (Michaillat and Saez 2021, figure 5). It will not be triggered by an outward shift in the Beveridge curve because such shift produces a joint increase in unemployment and vacancy rate—so the vacancy rate does not fall. It will not be triggered either by an inward shift in the Beveridge curve because such shift produces a joint decrease in unemployment and vacancy rates—so the unemployment rate does not rise. Only a diminution of economic activity pushing the economy down the Beveridge curve will trigger the indicator.

7. Conclusion

This note constructs a new recession rule for the US economy by combining data on job vacancies and unemployment. The new rule is triggered earlier than the Sahm rule: on average it detects recessions 1.4 months after they have started, while the Sahm rule detects them 2.6 months after their start. The new rule also has a better historical track record: it perfectly identifies all recessions since 1929, while the Sahm rule breaks down before 1960. The rule indicates that the US economy may have entered a recession as early as April 2024. In August 2024, the probability that the US economy is in recession is 48%.

Of course, it is useful to know when the economy might has entered a recession. A recession indicates that economic conditions will rapidly deteriorate, and calls for policy actions. In that way, our indicator conveys useful information for policymakers. But there is no direct link between the value of the indicator and good monetary and fiscal policy.

However, the combination of vacancy and unemployment data that we use to construct our recession rule can also be used to design good stabilization policies. This paper provides an example of the predictive power of the vacancy-unemployment combination. But the vacancy-unemployment combination has normative power too.

Using the same data as in this paper, Michaillat and Saez (2024b) argue that the full-employment rate of unemployment (FERU) in the United States is given by $u^* = \sqrt{uv}$, where u is the unemployment rate and v the vacancy rate. The FERU is a central target for the federal government and the Federal Reserve, because both are legally mandated to maintain the economy at full employment (US Congress 1946, 1977, 1978). Because the FERU is the efficient unemployment rate, it is a key input into the design of optimal monetary policy (Michaillat and Saez 2022, 2024a) and optimal fiscal policy (Michaillat and Saez 2019).

Between 1930 and 2024, the FERU is stable, hovering around 4% Michaillat and Saez (2024b, figure 12A). The FERU has generally been below the unemployment rate, so the US economy has generally fallen short of full employment Michaillat and Saez (2024b, figure 12B). As of August 2024, the unemployment rate is 4.2%, the vacancy rate is 4.6%, so the FERU is $u^* = \sqrt{0.042 \times 0.046} = 4.4\%$. Since the unemployment rate is below the FERU, the US labor market is still inefficiently tight. However, the unemployment gap is almost back to zero, at $u - u^* = 4.2\% - 4.4\% = -0.2$pp. Thus, the US economy is now almost back at full employment after having been overheated for 3 years, since the middle of 2021.

If the economy continues cooling at it would in a recession, the labor market will rapidly cool past full employment and become inefficiently slack. In such situations, the Fed should cut rates to stimulate aggregate demand and labor demand. Rate cuts take some time of become fully effective (Coibion 2012). Yet, they are the most natural way to keep the economy as close as possible to full employment.

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