

Counter-Pressing Effect Value (CPEV)

Non-Technical Explanation

Liverpool FC – Machine Learning Project

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Introduction: The Idea Behind CPEV

As Jürgen Klopp once said, “*There is no better playmaker in the world than a good counter-pressing situation.*” This idea lies at the heart of the metric. Counterpressing—also known as *Gegenpressing*—is the act of immediately applying pressure after losing the ball, with the goal of winning it back before the opposition can build an attack.

What makes counterpressing so valuable is the specific moment it targets. The opponent who has just regained possession is often at their most vulnerable:

1. They are still controlling the ball and not yet secure in possession.
2. They have likely expended energy in the duel to win it.
3. They often have limited awareness of their teammates’ positions.

These conditions create a brief window where intense, well-coordinated pressure can lead to dangerous turnovers close to goal—turnovers that often produce high-quality scoring opportunities.

The concept behind the **Counter-Pressing Effect Value (CPEV)** metric is to capture exactly that: the value a player adds to his team through counter-pressing situations. It measures the likelihood that a shot **inside the penalty area** will occur **within 10 seconds of the ball recovery**.

This approach focuses on how effectively players convert defensive effort into attacking threat. While CPEV does not directly measure the quality of each chance—since finishing, positioning, and decision-making also play major roles—it provides a powerful indication of a player’s ability to create danger through counterpressing and sustain pressure in advanced areas.

In this report, the focus is placed specifically on **midfielders**.

How CPEV Works and Underlying Assumptions

CPEV evaluates each instance when a player regains possession quickly (within 7 seconds) after a turnover by considering three key factors:

1. **Location of the regain:** Winning the ball closer to the opponent’s goal is more valuable than regains in the defensive half. Central recoveries in high areas of the pitch are particularly dangerous.
2. **Opponent disorganization:** Recovering possession when the opposing team is not well-structured or stretched increases the likelihood of creating a shot.
3. **Immediate action after the regain:** The first action taken after winning the ball—whether a progressive pass, dribble, or carry—affects the chance of creating a shot. Quick, vertical plays are significantly more likely to lead to scoring opportunities.

These components were chosen based on footballing intuition and practical understanding of counter-pressing dynamics. By quantifying how each factor contributes to creating danger, the model can reveal both expected and unexpected tactical patterns.

Assumptions and Simplifications:

While CPEV provides a structured framework for evaluating counter-pressing effectiveness, it operates under several simplifying assumptions:

- **Time window:** Only shots within 10 seconds of a regain are considered, as longer sequences are less influenced by the initial press.
- **Shot location:** Only shots inside the penalty area are used, as they typically represent higher-quality opportunities.
- **Next action:** The first action following a regain is treated as the most influential on attacking potential; later actions are not explicitly modeled.
- **Opponent shape estimation:** The Out-of-Shape Index captures defensive disorganization in a simplified manner and may not reflect every tactical nuance, such as off-ball movements or man-marking.

Together, these methodological principles and assumptions translate a complex tactical concept into a measurable, comparable statistic—bridging football understanding with data-driven analysis.

Results

Figure 1 illustrates the top-performing midfielders across Europe’s top five leagues, ranked by their average **Counter-Pressing Effect Value (CPEV) per 90 minutes**. The dotted lines represent each league’s average, allowing for cross-league comparison of pressing efficiency and attacking conversion following ball recovery.

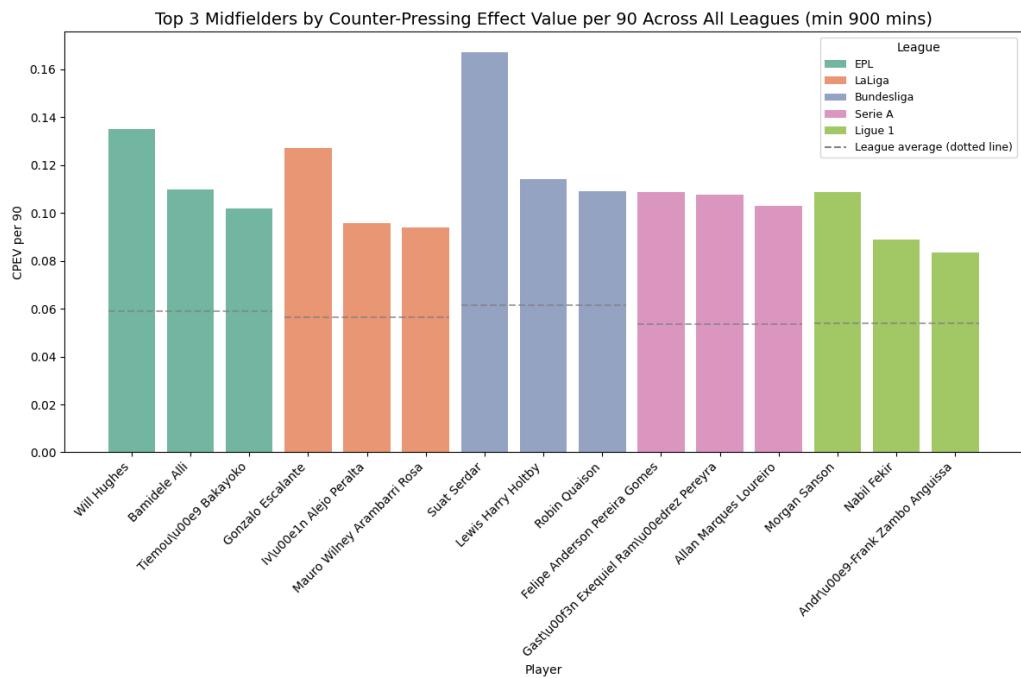


Figure 1: Top midfielders by Counter-Pressing Effect Value (CPEV) per 90 minutes across Europe’s top five leagues.

Conclusion

The **Counter-Pressing Effect Value (CPEV)** identifies players who most effectively transform pressing moments into immediate attacking opportunities. In this analysis, **Suat Serdar** stands out clearly as the top-ranked midfielder—leading the metric by a significant margin. His performances in the high-intensity Bundesliga, combined with his tactical and physical potential at just 21 years old and a market value around £10 million, make him an outstanding fit for Liverpool’s pressing-oriented philosophy and long-term recruitment strategy of acquiring players before their peak and developing them within the system.