

Why Small Nations Produce More Professional Footballers Per Capita

An efficiency framework for national football development

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The puzzle. Serbia produces senior professional footballers at roughly ten times the per-capita rate of Germany. Croatia exports more players per active participant than France or the Netherlands. Scotland consistently outproduces England despite sharing a border, language, and comparable infrastructure investment. Existing accounts blame culture, street football, or academy methodology — none of these is wrong, but none of them tells a federation what to invest in or why.

The framework. We model football ability as a normally-distributed trait within each national playing population. Becoming a professional requires crossing a threshold set by the European labour market — a player either can compete in some EU professional league, or cannot. Because the threshold is in the tail of the distribution, *small changes in the population mean produce disproportionately large changes in the number of professionals produced*. The threshold is calibrated from observed pan-European conversion rates (1.17 senior professionals per 1,000 active players) and implied national mean ability scores are derived for 29 European federations.

The headline finding. Raising a population's mean playing ability by 3 points (one-fifth of a standard deviation) generates the same increase in professional output as doubling its participating population. The multiplier is larger for federations further below the European mean. This is a tail-statistics result, not an empirical correlation — it follows directly from the threshold geometry.

The implication: for federations with a reasonable participation base, *coaching quality and developmental environment matter more at the margin than registration growth*. Investment that raises the average quality of development beats investment in expanding the elite-selection funnel. Implementations could include: nationwide RAE-correction practices, coach density and quality at grassroots tiers, and deliberate investment in unstructured-play environments below the academy threshold.

What federations should monitor.

- Conversion rate to professional status, not registration counts. Registration numbers can grow while quality declines.
- Number of professionals based abroad as a leading indicator. A preliminary lagged analysis using historical CIES expatriate data shows that a federation's 2017 abroad count correlates +0.52 with its 2026 FIFA ranking — the cohort cycle is observable in the data.
- Distinguish small-nation and large-nation strategies. A small high-mean federation cannot brute-force its way to a deep talent pool by participation alone; a large low-mean federation will under-perform its size unless it raises the mean. Imitation across the size divide tends to under-deliver.

Data caveats. The framework is the durable contribution. Exact national mean-ability scores depend on registration data quality, which varies materially across federations (England reports 1.4M including grassroots; Portugal reports 235k of competitive licences only). The directional ranking and the efficiency results are robust within plausible adjustments; precise point estimates should be treated as illustrative pending coordinated UEFA-level data standardisation.

More.

- Full paper: papers.ssrn.com/sol3/papers.cfm?abstract_id=6730458
- Data, code, and per-country adjustment factors: doi.org/10.5281/zenodo.20076227

The paper makes specific predictions about which federations face under-recognised structural risk and which are over-rewarded by current FIFA points. I am happy to walk any federation through what the framework implies for its specific situation.