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Taking center stage: Decoding status hierarchies from group photos of European leaders

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Abstract
I investigate whether group photos of international leaders can provide useful data on interstate status perceptions. I formulate a spatial model of social hierarchy and evaluate it against newly gathered data on the placement of leaders in 121 European Council group photos between 1975 and 2015. I find support for determinants of placement at the international, institutional, and individual levels. The results suggest that: (a) group photos provide a previously untapped source of data on international status; (b) data derived from group photos can supplement existing status proxies based on material capabilities or diplomatic connectivity; (c) group pictures can be particularly useful for discerning status hierarchies among sets of relatively homogenous countries, such as those of the European Union.

Keywords
European Union, G-20, hierarchy, international status, methodology

Although premised on the principle of sovereign equality, world politics is rife with status rivalries, as states seek to position themselves in the international pecking order. The Kaiser's Imperial Germany aspired to international recognition through an expansive Dreadnought program. During the Cold War, the United States and the Soviet Union sought to display their technological prowess via space programs. While such military or semi-military endeavors remain important to status-seeking

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powers – witness the enthusiasm with which China and India have launched aircraft carriers – non-violent forms of symbolic competition, such as athletic performance or the construction of monumental buildings, have grown in importance as countries jockey for international position in the contemporary era.

Despite the prevalence of status-seeking behavior in international politics, there exist few credible ways of measuring status in international relations (IR). The conventional approaches have centered on proxies such as military power (e.g. Clark, 2011; Gilpin, 1983) or on measures of diplomatic connectivity (e.g. Renshon, 2016; Singer and Small, 1966; Volgy and Mayhall, 1995). While directly observable and plausible correlates of status, structural proxies have been criticized for failing to capture the essence of the phenomenon: that status is inherently relational and emerges from peer recognition (Welch-Larson et al., 2014). Measures focused on diplomatic exchange recognize the social emergence of status, but frequently fail to take into account heterogeneity across states or variation in diplomatic rank.[1] In the search for alternative measures, scholars have turned to the distribution of Olympic medals (Rhamey and Early, 2013) or foreign aid commitments (Bezerra et al., 2015). Another approach is provided by constructivist scholars who, via in-depth case studies, seek to map the generation of status in diplomatic 'practices' (Pouliot, 2016). This approach yields more fine-grained data on the local sources of status but overlooks its material underpinnings and raises evidentiary requirements that prohibit systematic, large-n comparison.

Are there alternative ways to measure status in international politics? In this article, I propose that the placement of world leaders in 'family photographs' at international meetings can provide a previously untapped source of data on symbolic hierarchies in world politics. Group pictures constitute one of the few arenas where states organize themselves, clearly and visibly, in relation to each other, in a context with commonly recognized gradients of status. Group pictures are also standardized, recurrent, and immediately observable. In other words, they provide a data source that is sensitive to the social dimension of status, while simultaneously generating data suitable for systematic and comparative analysis.

My core argument is that if the placement of leaders in group pictures is a crystallization of underlying status hierarchies, one can deduce status from quantitative evidence on placement. Theoretically, I draw on scholarship on the depiction of hierarchy in art, photography and politics to support a claim that central placement in group pictures is associated with high status. To decode status hierarchies, I develop a spatial model that conceptualizes the relative centrality of leaders based on their location in a square lattice. I apply the model to group photos from meetings in the European Council, the apex body of the European Union (EU), and as a robustness check, to the G-20, a forum comprising the twenty most important economies. The EU data cover placement of 176 leaders in 121 images from Council meetings between 1975 and 2015. The G-20 data cover placement of 59 leaders in photos between 2008 and 2016. I employ regression analysis and exploit a 'natural' experiment emerging from a shift in EU meeting rules in 2007.

Based on the analysis of these data, I identify determinants of central photographic placement operating at the international, institutional, and individual levels. At the international level, country size is significant, with the placement of larger countries being more central, on average, than smaller countries. At the institutional level, countries represented at the level of heads of state receive a more prestigious position than countries that send heads of government. Holding the rotating EU Presidency also predicts central placement. At the individual level, gender is a strong predictor of a central position in photographs. On average, female leaders are placed 25% closer to the middle than their male peers.

These results suggest three broader implications for research on status in IR, further developed in the conclusion. First, they demonstrate an approach that, with reasonable assumptions, allows us to arrive at an empirical measure of status and its components. Second, a status measure derived from leader photographs can supplement conventional proxies based on material capabilities or diplomatic exchange. Third, the approach is likely to be particularly useful for discerning status hierarchies among countries of that exhibit limited variance on conventional proxies, such as those of the EU.

The visual representation of international status

Status is a constant feature of social systems at all levels, from the animal kingdom to world politics (Nicolson, 2014). In the study of IR, status hierarchies received considerable attention during earlier days, manifested in the work of Morgenthau (1948), Organski (1958), and Bull (1977), who examined the phenomenon through both social and materialist lenses. Perspectives offered by hegemonic stability theory (e.g. Gilpin, 1983) remain influential, but a newer and rapidly growing literature signals the reemergence of status as a primary research agenda with an interest in conceptual disaggregation and heterogeneous methodological approaches (Dafoe et al., 2014; Paul et al., 2014; Pouliot, 2016; Renshon, 2016; Rhamey and Early, 2013; Volgy et al., 2011).

International status may be defined as 'collective beliefs about a given state's ranking on valued attributes' (Welch-Larson et al., 2014: 7). It is derived from the inclusion in a social in-group, such as an international organization (IO), and from the relative standing within that in-group. Status thus combines the qualities of a 'club good' where value is created by accentuation vis-à-vis outsiders (Lake, 2014), and of a 'positional good' where value emerges from having access to attributes that are rival, scarce, and attractive (Hirsch, 2005). While status may correlate with material attributes, such as military power, financial clout or cultural abundance, most scholars agree that it is ultimately a social construct, since relative standing is only intelligible in a context that allows for both the intersubjective recognition of value scales and relative comparison (cf. Paul et al., 2014; Pouliot, 2016).

One challenge in the study of international status has been to find empirical strategies that convincingly capture intersubjective recognition and relative comparison among states. This methodological problem has conventionally been

addressed by assuming that proxy variables, specifically measures of material capabilities, are an adequate representation of status (Clark, 2011; Gilpin, 1983). The disadvantage with the proxy approach is that it assumes away a key facet of status: its dependence on social recognition. If a given material proxy translates into social status, a material approach is reasonable, but if it does not, the proxy fails to connect to the underlying concept.

Another empirical strategy has focused on diplomatic connectivity (Rhamey et al., 2013; Singer and Small, 1966; Volgy and Mayhall, 1995). Given the (reasonable) assumption that diplomatic exchange confers status on recipient countries, the scope of a given country's 'portfolio' of foreign diplomats can be turned into a measure of its status. Diplomatic exchange measures have been criticized for overlooking heterogeneity across sender states and diplomatic ranks, problems that other scholars have sought to correct by means of weighted network analysis (Renshon, 2016). However, even these more sophisticated measures are derived from historical data on diplomatic representations, which are likely to have been established for a variety of reasons, not all related to status. For example, the range of a country's diplomatic network may be influenced by its economic resources and, vice versa, by the commercial opportunities it awards other countries.

For these reasons, some scholars have turned to measures of active status-seeking behavior, such as the competition for Olympic medals (Rhamey and Early, 2013) or the distribution of foreign aid (Bezerra et al., 2015). Another approach has been to focus on the social generation of international status seeking to trace its origins and characteristics via qualitative data on diplomatic practices (Pouliot, 2016). Owing to its ability to capture social recognition, this approach tends to arrive at more valid – and more nuanced – measures of status. However, the approach is not suitable for examination of underlying drivers (including material capabilities) of status, and its evidentiary requirements are so demanding that systematic, large-n tests across time are nearly impossible.

An alternative strategy is to focus on social arenas where international pecking orders are reflected in directly observable characteristics. The proposition here is that group photos of international leaders constitute such an arena, with three attractive properties. First, group photos are one of the few domains where international leaders organize themselves directly in relation to each other where there simultaneously exist commonly accepted standards for what amounts to positions of status. Second, group photos may allow us to discern status hierarchies even among countries with similar material and diplomatic characteristics. Third, since group photos are comparable and recurrent over time, they are suitable for systematic statistical analysis.

High-level group photos as a status arena

For many international institutions, be they informal mechanisms such as the G-20 or heavily institutionalized organizations such as the EU, it is customary to arrange a photo of the attending leaders, distributed to the mass media and recorded in the

institution's annals. My argument is that such photos not only encapsulate information on who was present and who was not, but that they constitute an articulation of status, as defined above, operating via two mechanisms. First, by providing a mechanism for inclusion and exclusion, a group photo defines an in-group (the states that are represented). Second, by providing a mechanism that compels states to distribute themselves spatially in relation to each other, it defines a hierarchy of relative standing (the position of their leaders in the photo).

The outcome of the first mechanism is clear: a state is either in or out. But the second is more complicated. What positions are associated with high status in a group picture? I assume that, ceteris paribus, centrality of placement equals high status. This assumption is supported with reference to modern diplomatic protocol (McCaffrey et al., 2002) and to conventions in art and visual communication (Fyfe and Law, 1988). It also corresponds to observations made in research on leader placement in the Soviet Union and China (MacFarquar, 1971; Rush, 1959).

First, diplomatic protocol typically prescribes that individuals of higher rank should be placed in a more prominent position in a group picture, most often identified as the position in the front and center. This means that heads of state are privileged over heads of government, heads of government are privileged over cabinet ministers, and so on.

Second, depicting high-status individuals in a central location of an image is a long-standing practice in art and visual communication. This convention goes back millennia, as is witnessed in the placement of statues in Greek temples, where higher-ranking gods received the most central placement (e.g. in the Temple of Aphaia on Aigina, Athena is depicted at the center of the pediment, flanked by lower-ranking figures on either side). More recent examples include photographs of rock bands, athletic teams, and corporate public relations material, where prominent individuals are often represented in the center.[2]

Third, the notion that central positions reflect social importance has a firm footing in Cold War-era research on verbal and photographic communication in the Soviet Union and China (MacFarquar, 1971; Rush, 1959). Due to the opacity of these societies, observers were compelled to rely on indirect evidence to draw conclusions about unobservable, internal political dynamics. Such evidence could include the placement of leaders on the observation deck during military parades, seating arrangements in the Politburo, or photographs disseminated by the ruling parties. In a study of photographic communication in Mao's China, MacFarquar (1971: 291) argues that the positioning of officials in official photographs was done on a 'hierarchical basis' and that '[p]hotographs should therefore normally reflect that hierarchical ordering'. In these regimes, central placement, especially in terms of proximity to top leaders, was understood as a sign of status (MacFarquar, 1971; Rush, 1959).

What makes the assumption of central placement particularly convincing with regard to group photos of modern leaders is that there are few, if any, other ways of communicating status. Modern dress is highly uniform, especially for men, and

status enhancing adjustments, such as modifying a leader's size, are clearly not conventional today.

Status and non-status determinants of placement in high-level group photos

I conceptualize a group photo as the end result of a coordination process between international leaders. The premise of coordination is straightforward: with a limited number of places, no two leaders can occupy the same space. In this conception, locations in a group photo are a scarce (positional) good, distributed by leaders standing on them. In contexts where leaders chose locations themselves, it may be viewed as a bidding process, in which leaders make bids for placements that meet their preferences, as constrained by institutional rules, the host's instructions, and the placement of others. Taking a position then becomes, in essence, a status grab. In the more common case where placement is determined by a third party, such as a host, it represents an externally imposed 'bid' where the placement represents the host's conception of the actor's relative standing. In either case, the end result is a placement distribution that partly reflects concerns of hierarchy.[3]

Assuming compliance with the principle of sovereign equality and the physical ability of leaders to occupy any space in a group photo, a pure rational choice perspective may lead us to expect that repeated play of the envisioned coordination process would produce long-term patterns without systematic variation. Over time, leaders would distribute themselves as close to the center as they could, but, assuming that the order of bids is selected randomly, the process would not produce any variation across leaders. Even on the basis of anecdotal data, we know that such randomness is not observed, so this naive perspective is clearly unfulfilling. Factors beyond the principles of equal sovereignty and comparable physical capabilities must therefore be at play, shaping the ability of leaders to achieve positions of high centrality. What are these factors, and which of them may be interpreted in terms of status?

Inspired by standard IR theories, the literature on status (Paul et al., 2014; Pouliot, 2016; Renshon, 2016; Volgy et al., 2011; Wood, 2013), and research on EU bargaining dynamics (Tallberg, 2008), I identify determinants of placement at three levels: international, institutional, and individual (Figure 1).

International determinants are likely to include factors dependent on a nation's size, such as its economic size and material capabilities (Gilpin, 1983; Morgenthau, 1948; Renshon, 2016). All else being equal, one expects leaders from large countries to be more centrally placed than leaders from smaller countries. Strong military capabilities, specifically nuclear weapons, may also generate status (O'Neill, 2006). In addition, hosts may seek to favoritize leaders of countries with which they have important economic links.

At the level of institutions, the placement of leaders is likely influenced by diplomatic protocol (McCaffrey et al., 2002; Mösslang and Riotte, 2008) and institutional rules (Tallberg, 2008). Diplomatic protocol emphasizes formal rank, leading to the expectation that high-ranking leaders receive a more central location.

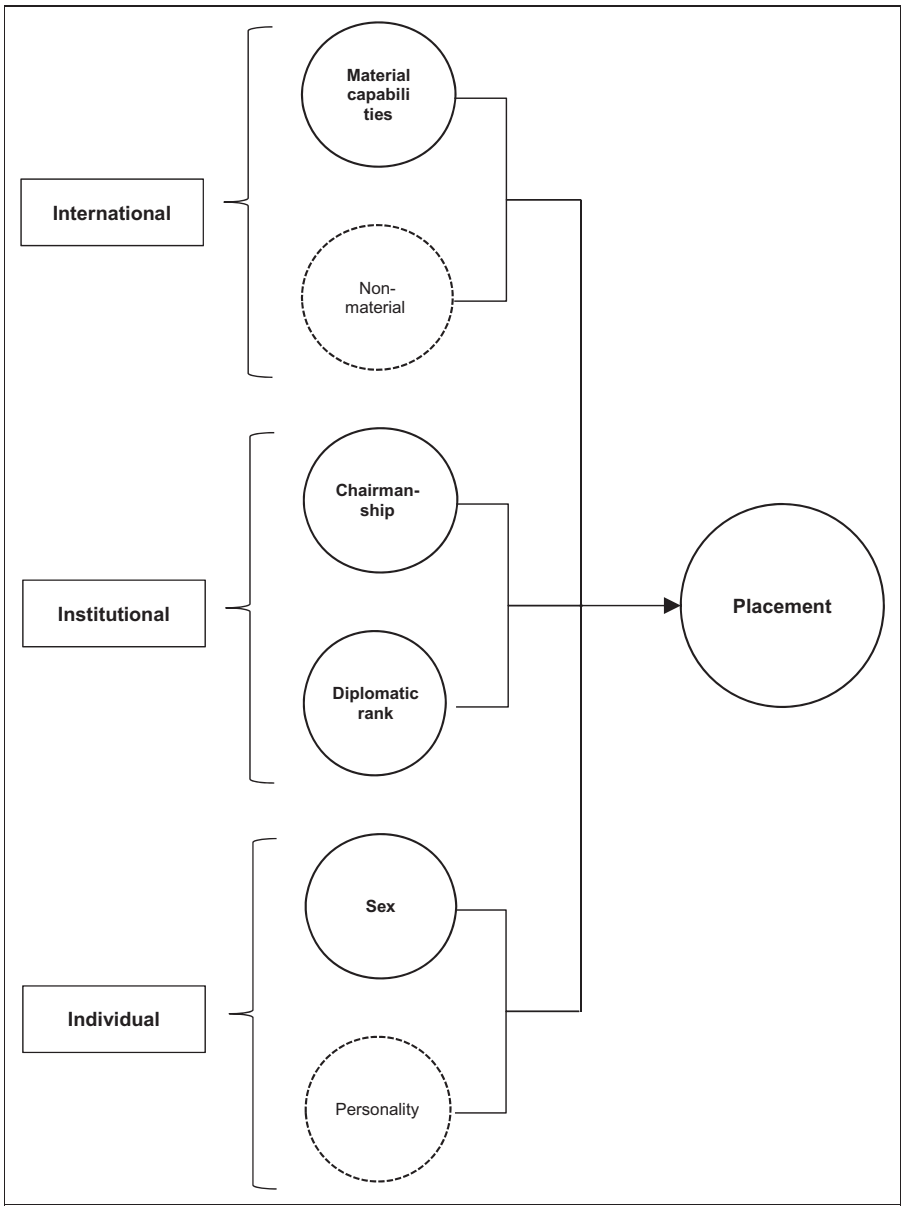

Figure 1. International, institutional, and individual determinants of placement. Unobserved factors in dashed circles.

Institutional rules are likely to favor certain leaders at certain times, depending, for example, on whether they hold the rotating EU Presidency or host the meeting.

At the individual level, the placement of a leader may be shaped by personal psychological characteristics, including variation in aggressive or deferential tendencies, or in social authority (Young, 1991). Likewise, the experience of leaders, that is, the extent of their past participation in the same forum, may influence their standing in the group (Tallberg, 2008). Furthermore, to the extent that chivalry or sexism is prevalent in high-level meetings, gender may be a determinant (cf. Norris, 1996).

The relationship between the drivers of placement and status requires some disentangling. One perspective would be that a country's placement, observed over long periods, would correspond to its status: Countries that systematically find central placement are high-status countries. This perspective is arguably too inclusive, because not everything that affects placement does so via a mechanism that incorporates concerns of international status. Most of the individual characteristics discussed above, while they may generate personal status, are not a product of international status and do not depend on it for their effect to occur. In contrast, material factors, if they affect placement, are likely to do so via an indirect status mechanism. Why? Because the material capabilities of a country do not bestow a direct placement advantage at the level of individuals: it is the social reflection of material capabilities, or status, which does. With regard to institutional factors, determining whether the effect travels via status mechanisms or not is more challenging. On the one hand, diplomatic practices reflect age-old concerns of status. Indeed, the diplomatic hierarchy of political leaders, such as monarchies versus non-monarchies, can be traced back to status concerns of earlier eras, which, by virtue of being continuously replicated in diplomatic practice, has survived until today. On the other hand, most of these concerns, including monarchies versus non-monarchies, have become irrelevant for status games in the international arena.

In short, the perspective here is that neither international, institutional nor individual determinants of placement are effectuated purely via status mechanisms, but that status is involved in all of them to varying degrees. International factors are most likely to exert their effect on placement via status mechanisms and individual factors the least. I return to this question in the interpretation of the findings below.

Measuring placement in high-level group photos

To measure placement, I conceptualize a group photo as a two-dimensional square lattice, with available positions arranged in horizontal lines (Figure 2). Each location has place for one leader and, for any given group photo, is either occupied or not occupied. Each leader is given a Cartesian coordinate, signifying the horizontal (x) and vertical (y) position in the lattice.

Centrality is the distance to the *central position*, defined as the middle position in the first row, or if there is an even number of positions, as the median position.

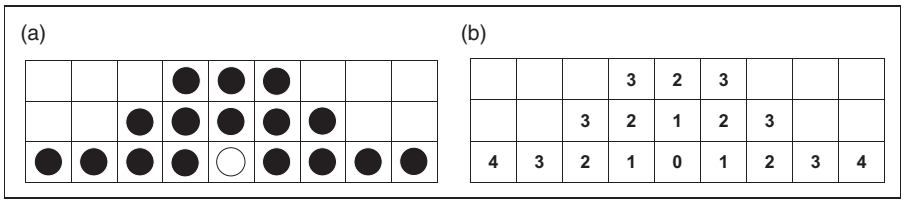

Figure 2. Lattice representation of a group photo. (a) With central position marked and (b) With rectilinear distance values.

One may think of this position as the origin, or reference point, in a system of coordinates. In Figure 2(a), an empty circle marks the central position.

Distance is measured as the rectilinear distance ('Manhattan distance'), the absolute differences of the Cartesian coordinates. For example, standing on either side or right behind the central position equals a distance of 1, but standing diagonally behind on either side equals a distance of 2 (Figure 2(b)).

Rectilinear scores represent the spatial distance between grid locations, but they may not capture the full social meaning of placement in the back rows. In many contexts, there is a 'cheap seat' effect, whereby the social distance between rows is somewhat greater than the rectilinear distance. For example, the person standing two positions to the left or right of the central position may be thought to occupy a more prestigious position than someone standing two rows behind the central position, although the rectilinear distance value is identical (=2) in both cases. Accounting for the 'cheap seat' effect, in some of the analyses below, the rectilinear distance is multiplied by a context-specific factor, α, varying with the amount of social discounting imposed on back rows.

Data

To evaluate the theoretical framework, I gathered data on the placement of political leaders in group photos from meetings of the European Council, the apex body of the EU. The Council plays a central role in decisions regarding the strategic direction and institutional architecture of the Union. It is a good choice because it meets regularly, is well-documented and retains membership across time.

Using publicly available photographs from Council meetings,[4] I identified the name and exact placement of each political leader in each meeting for which photographs were available, from the first formal Council meeting in 1975 to the last meeting of 2015. The resulting dataset contains 2203 observations on the placement of 176 leaders in 121 meetings over 40 years.

An important feature of the data is that they cover a shift in the placement process. The 2007 Treaty of Lisbon established a permanent President of the Council and Brussels as a standing meeting place. Following this shift, the placement of leaders in Council group photos follows a pre-arranged rotational scheme,

tiered after diplomatic rank, which awards individual countries little influence over placement.[5] The post-2007 arrangements stand in contrast with the previous system, when meetings were organized in different countries and host countries had considerable leeway regarding arrangements. While a number of conventions (including the arrangement of a group picture) have emerged over time, there were, at least by the early 2000s, 'no hard and fast rules' in how meetings should be organized (Heinisch, 2003). Qualitative assessment of the photos (overall appearance, setting and relative positioning of leaders) suggests that placement prior to 2007 occurred either informally or, most frequently, based on the host's instructions, sometimes visible as notes on the floor indicating each leader's placement.

Regardless of which process governed placement, the end result may be viewed as an expression of underlying status perceptions. And while it is impossible to ascertain which process governed the placement of leaders in any given pre-2007 photo, we can be relatively confident that placement in pre-2007 photos reflects a wider range of determinants than post-2007 photos. For that reason, the institutional changes of 2007 approximate a 'natural experiment' in that the influence of international determinants, such as country size, was terminated at this time.

To enable an out-of-sample robustness check, I gathered data on summits of the G-20, an international forum comprising 19 leading countries and the EU. The data cover eleven G-20 summits, 2008–2016, for a total of 225 observations on 59 leaders.

The spatial location of leaders was coded in accordance with the above-mentioned coordinate system. Based on the pure coordinates, I calculated meeting-specific central locations, which allowed me to calculate the relative position of each leader. The variable *centrality* captures the rectilinear distance score for each leader and meeting, according to the grid model above. This means that a higher score equals a 'worse' placement and a lower score a 'better' placement. Since the number of leaders present varies over time – especially due to the growing EU membership – the regression analysis relies on a standardized measure from 0 to 1, where 0 is the central location and 1 the most extreme distance in a given meeting. In the regression analysis, I operationalize the 'cheap seat' effect by discounting centrality by 25% ($\alpha = 0.25$) for leaders in the second row, 50% ($\alpha = 0.5$) for those in the third row, and so on.

To capture diplomatic protocol, the *rank* of leaders is coded as 1 for heads of state and 0 for heads of government. Individuals present in photographs other than a country's top representative – for example, an accompanying minister – were excluded from the analysis. I code a binary variable *Chairmanship* as 1 for countries holding the rotating EU Presidency or hosting a G-20 summit, and 0 otherwise.

Country size is measured via *gross domestic product* (GDP), the size of a country's economy (in constant US dollars), and *population*, measured in millions in the year 2000. Since GDP and *population* are correlated, I rely on the former as a more general measure of country size. The variable *nuclear weapons* is coded 1 for countries with a nuclear arsenal. To capture strategic interests, I include the variable *trade interests*, operationalized as the proportion of the host country's trade

with the observed country in the year of observation (Correlates of War, COW data).

At the individual level, the variable *female* is coded 1 if the leader is a woman. The variable *experience* is the running cumulative sum of meetings attended by a leader, with higher values indicating a longer tenure.

Results

Analysis of the data yields several patterns, with variation across countries, time, and leaders. The first part of this section presents descriptive results; the second part contains predictive regression analyses.

Examining centrality across countries

Figure 3 presents the average centrality of EU member states.[6] The following observations can be made. First, there is a considerable amount of variation across countries, with centrality ranging from 1.5 for France to 7.1 for Croatia (again, a lower score indicates a more central placement). Second, countries are spaced in a relatively smooth continuum from the most central to the least, suggesting the existence of underlying coordination principles that can be understood as hierarchical. Third, while it is difficult to say anything about the importance of country size at this junction, it is clear that institutional factors, in particular diplomatic protocol, represent one component of hierarchy: many of the most centrally placed countries are represented at the level of heads of state.

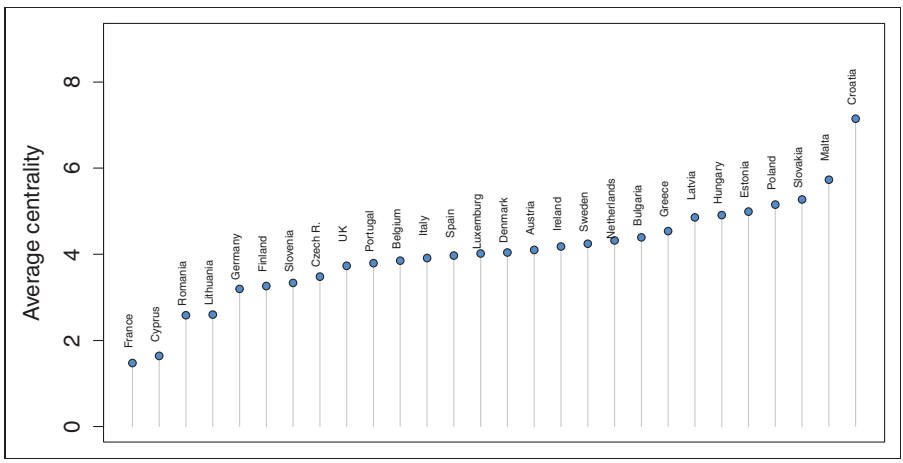

Figure 3. Average placement centrality of EU countries, 1975–2015.
EU: European Union.

The country with the most central placement is France, with a centrality score of 1.5. This means that the representative of France is, on average, placed 1.5 places away from the central position. Following France, there are several smaller countries – Cyprus, Romania, and Lithuania – which all seem to reap benefits from diplomatic protocol. These countries are frequently represented by leaders of high rank, mirroring the presidential nature of their political systems. In terms of centrality, Germany comes in fifth, with an average distance of 3.2, whereas another large founding member, the United Kingdom (UK), has a centrality score of 3.7. Italy, with a score of 3.9, falls lower than most other major EU members. On the other hand, Italy has a front-row placement in 72% of its meetings, higher than any other country represented by a head of government. So, it seems that Italy is good at finding a spot in the front, just not in the center.

It is noteworthy that many of the more recent EU members place far from the center. Some of this is likely to stem from the post-2007 arrangement of leaders, which may have disadvantaged newer members by placing them 'last in line'. However, for the 2004–2007 period, they could also have been disadvantaged by their relative unfamiliarity with the Council and its informal protocols.

Variation within countries across time

To explore variation over time, I mapped out the average yearly centrality score of three large EU founding members. Figure 4 illustrates the cross-temporal centrality score of France, Germany and the UK. Superimposing the tenure of each country's leader. The following patterns emerge. First, all countries display a tendency to higher centrality scores over time, a reflection of the EU's growing membership: with more leaders present, group photos are larger, implying that distances grow. Even so, there is variation, with France seemingly less affected by growing

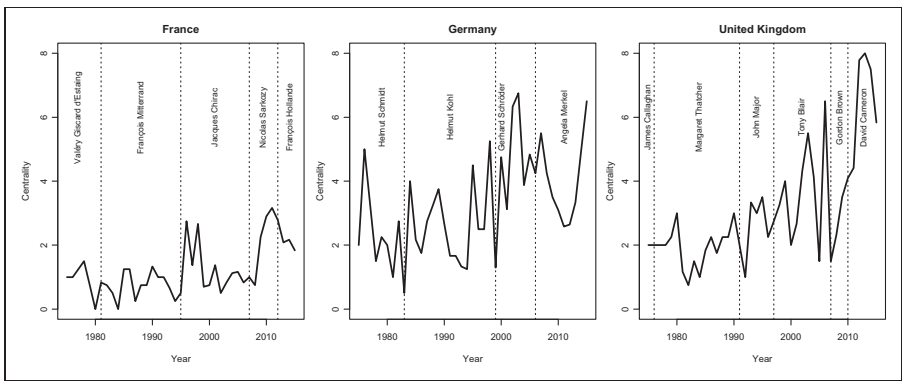

Figure 4. Annual average placement centrality for France, Germany, and the UK, 1975–2015. Terms of political leaders represented by vertical lines.

membership than both Germany and the UK, and Germany seemingly less affected than the UK.

For France, its first three presidents in the studied period routinely occupy the most prestigious positions. The more recent presidents drift further out, but still retain a claim to occupying the center. In the case of Germany, Chancellors Schmidt and Kohl maintain relatively stable positions, but are rarely located right at the center, whereas the trajectory of Chancellor Schröder points out into the periphery, only to be broken by the resolute centrifugal pull of Angela Merkel, which returns Germany to a few years of high centrality. As for the UK, it appears to be swinging back and forth between a location congruent with its size and international weight, and a position of ambivalence and distance. Margaret Thatcher represents the former, and, with the exception of some temporal swings, most other British leaders represent the latter.

A comparison of Germany and the UK provides a mini most-similar-cases study, as these countries are represented at the same level and are both large states. For most of the 1970s and 1980s, Germany is placed more peripherally than the UK, but this is reversed in the 1990s and 2000s, when the situation is more comparable across the countries, or even favoring Germany. This shift may be due to several factors, but it is conceivable that it mirrors Germany's growing role as 'pay master' of the Union.

Statistical modeling: What factors determine central placement?

The descriptive analysis has identified some possible determinants of centrality of placement, but it is likely that comparisons are distorted by confounding variables. For example, it may be that larger countries tend to have presidential political systems, that non-presidential systems are more likely to elect leaders of a particular gender, or that some political systems change leaders more frequently and are therefore inversely correlated with experience. To diminish the possibility of such distortions, I turn to regression analysis, estimating ordinary least squares models of placement centrality.

Table 1 displays the results. As can be seen in model 1, with the exception of experience, all predictors influence the placement of leaders in the expected direction and at high levels of statistical significance. The negative coefficient for GDP shows that larger countries will see their Council representatives placed more centrally than smaller countries, controlling for institutional and individual characteristics. Holding the rotating Council Presidency has a strong substantive effect on centrality, as does being a head of state. Female leaders may expect to be placed more centrally, but the effect is not as strong as that originating from Presidency or diplomatic rank. Figure 5(a) visualizes these results.

Model 2 seeks to capture the effect of the 2007 rule change, which exogenously modified the influence that international factors, such as GDP, can have on placement.

Table 1. Determinants of placement in group photos.

	Dependent variable: Centrality				
	(1)	(2)	(3)	(4)	(5)
	EU, base model	EU, interaction for 2007 rule shift	EU, additional international factors	G-20	EU, with diplomatic status measure
International					
GDP	−0.035***	−0.049***	−0.036***	0.000**	−0.015
	(0.005)	(0.006)	(0.010)	(0.000)	(0.009)
GDP × post-2007		0.050***			
		(0.010)			
Population			−0.000	−0.051***	
			(0.006)	(0.019)	
Nuclear weapons			0.006	−0.41	
			(0.023)	(0.44)	
Trade interest			−0.042		
			(0.038)		
Institutional					
Chairmanship	−0.45***	−0.44***	−0.46***	−0.49***	−0.45***
	(0.015)	(0.016)	(0.016)	(0.050)	(0.015)
Diplomatic rank	−0.35***	−0.35***	−0.35***	−0.16***	−0.35***
	(0.011)	(0.011)	(0.014)	(0.032)	(0.011)
Post-2007		0.007			
		(0.014)			
Individual					
Female	−0.051***	−0.075***	−0.051***	−0.065	−0.060***
	(0.017)	(0.018)	(0.018)	(0.041)	(0.017)
Experience	0.002**	0.001**	0.002***	−0.032***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Status (DIPCON/COW)					−0.10**
					(0.041)
Intercept	0.63***	0.63***	0.64***	0.98***	0.66***
	(0.010)	(0.011)	(0.013)	(0.008)	(0.015)
Observations	2203	2203	2203	225	2203
R^2	0.31	0.32	0.31	0.37	0.31
F statistic	122***	146***	121***	18***	163***

GDP: gross domestic product; EU: European Union; DIPCON: Diplomatic Contacts; COW: Correlates of War.

Note: Centrality measured as distance from center of photo; negative coefficients on factors that predict a more central placement. Errors clustered on meetings.

*p < 0.1, **p < 0.05, ***p < 0.01.

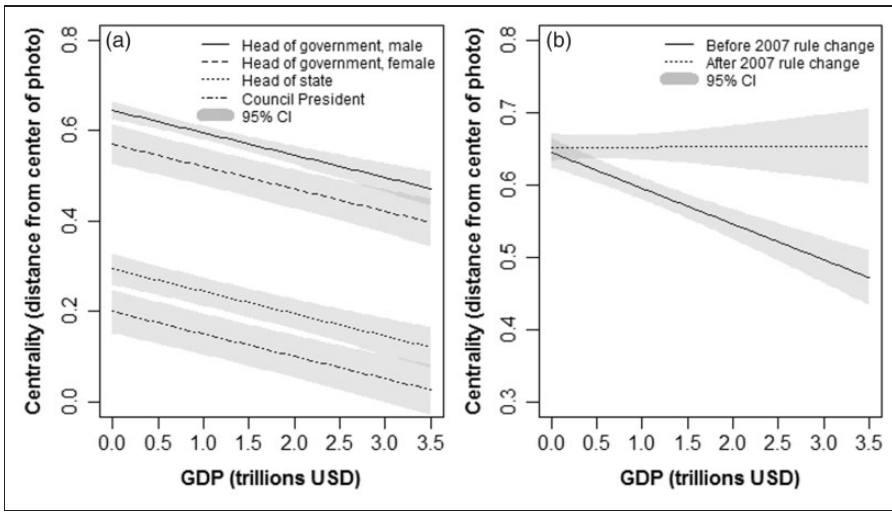

Figure 5. Predicted placement centrality. (a) By GDP, gender, rank, and EU Presidency and (b) By GDP before and after the 2007 shift to predetermined placement in photos.

The data bear this conjecture out. Overall, predictors behave as before, with one important and striking difference: the effect of economic size disappears in the post-2007 period. That is, since the format of Council meetings was regularized, being a larger country does not translate into a more central placement. Figure 5(b) visualizes this shift in the impact of GDP on central placement. It seems, then, that the regulated meeting procedures that emerged with Lisbon still reflect diplomatic protocol and gender, but, in contrast with earlier times, made size a non-factor. This suggests that from 2007, the Council no longer provides an arena where concerns of international status can be actively played out. Given that we know why this shift is due to an exogenously imposed institutional shift, the finding reinforces the conclusion that the determinants of placement in earlier eras, and specifically economic size, have a bearing on international status.

Model 3 shows that the key results are robust to controlling for population, nuclear weapons, and trade interests. The coefficient for the trade variable is negative, suggesting that hosts may seek to place important trading partners in a more central position, but the t-statistic is too small to rule out a chance effect. Furthermore, as reported in detail in the Online appendix, there is no evidence that placement is significantly affected by aesthetic considerations, such as the relative height of leaders.[7]

In sum, there is a clear discrepancy between the observed data and the baseline scenario, a distribution that would result if the principle of sovereign equality were uniformly applied. Leaders from larger economies are placed more centrally than other countries, even when controlling for diplomatic rank, chairmanship or gender, which also affect placement. Assuming that economic size does not provide

a direct advantage at the individual level, one must look for a social explanation to the observed pattern. Based on the theoretical perspective adopted here, a plausible explanation is that country size (or one of its correlates, such as power), is recognized as a valued good in the community of states and that intersubjective ranking on relative access to this valued good provides an organizational principle, even in diplomatic domains where the good – in the material sense – is useless. If so, it would be reasonable to claim that country size (or power) is a component of international status. Institutional factors are strongly predictive of a country's placement. While these may capture marginal aspects of international status, they are better understood as 'local' status factors, which reflect a country's standing at a particular meeting or institution, potentially awarding them additional influence within that limited context.

Robustness check: The G-20

If the proposed theory was accurate, we would expect to observe similar empirical patterns across IOs. To ascertain that the results are not driven by data features particular to the EU, I analyzed group photos from G-20 summits, employing an identical methodology and approach.

Figure 6 reports the average centrality of G-20 members, 2008–2016.[8] As with the EU, it is evident that placement is driven by a non-random process, which appears to reflect an underlying hierarchical principle. Importantly, two large and powerful countries, China and the United States, place far more centrally than other members. This suggests, again, that population and economic power determine a country's relative status. At the other end of the spectrum, with a low centrality score, is the EU, potentially reflecting the fact that it is a unique type of G-20 member (a supranational institution) that is represented by bureaucrats rather than heads of state or government.

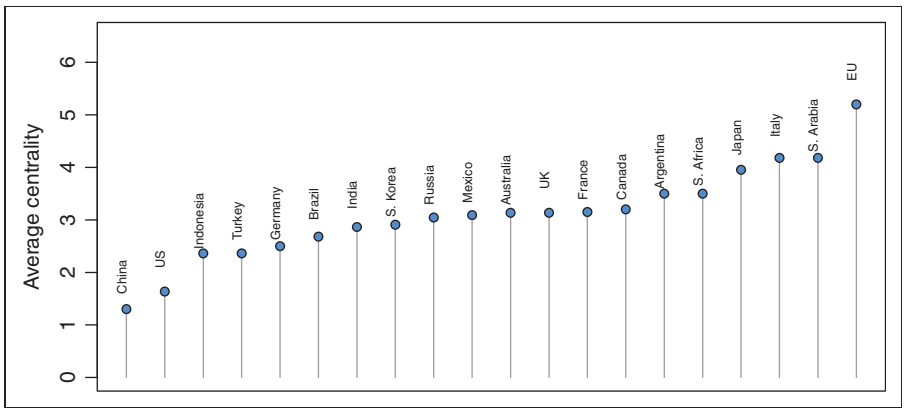

Figure 6. Average placement centrality of G-20 countries, 2008–2016.

Multivariate regression again helps isolate the influence of individual factors. In model 4 of Table 1, I estimate the effect of international, institutional, and individual characteristics on placement based on G-20 data. The coefficients inform us that a large population is associated with central placement, whereas economic size pushes mildly in the other direction.[9] Having nuclear arms moves a state closer to the center, but the association is insignificant at standard levels. Chairmanship (equivalent to holding the EU Presidency) is a strong predictor of central placement, as is representation by heads of state. Both the individual variables have the same sign as in the EU model, suggesting the data moves in the same directions, but the significance is reversed: in the G-20, the effect of female leaders is insignificant whereas that of experience is significant.

In sum, nearly all variables behave in the same way and frequently even have nearly the same effect size. Thus, the G-20 data provide a strong confirmation of previous results and again suggest that visible representation of leaders can offer insights about the drivers of social hierarchy.

Comparison with other quantitative status measures

Many different proxy measures of international status have been proposed and no single measure provides a fully satisfying reflection of the underlying concept. Empirical investigations of status will require many different measures and approaches, both qualitative and quantitative. To understand the utility of the group photo approach to international hierarchy, it is useful to compare it with existing measures.

One standard indicator in the literature is based on measuring the number of embassies received by a country in the year of observation (Rhamey et al., 2013; Singer and Small, 1966). I follow the approach of Bezerra et al. (2015) and use their percentage measure of status attribution, as derived from the underlying Diplomatic Contacts (DIPCON) and COW data (Rhamey et al., 2013). I then re-estimate my base model, with this additional variable included (model 5 in Table 1). As expected, the coefficient on the status variable is negative, suggesting that countries that receive a higher number of embassies (and therefore may be said to have higher status) are more likely to be placed in a more prominent place in leader group photos. The observed correlation provides an important validation of the argument that central placement in group pictures reflects hierarchical concerns. Conversely, the finding lends support to the viability of using diplomatic connectivity as a proxy for status.

Conclusion

Based on a theoretical proposition that status may be visually encapsulated, I carried out a quantitative analysis of leaders' placement in group photos from meetings of the European Council and the G-20, establishing patterns of variation across international, institutional and individual characteristics.

Three principal findings emerge. At the international level, greater country size predicts a more prestigious placement, even when comparing across leaders of identical rank and observable individual characteristics. At the institutional level, chairs and countries represented by heads of state receive a more prestigious position. At the individual level, females tend to receive a more central position. Not all place determinants can be interpreted as expressions of status, but there are few reasons to expect that international factors, such as country size, would translate into a more prestigious position in group photos, were it not channeled via a social status mechanism.

Beyond providing fine-grained and temporally sensitive evidence on status hierarchies within the EU, the findings suggest some wider implications. To begin with, by advancing new theory, a methodological framework, and original data, this study introduces an approach to make leader 'family photos' an intelligible source of data in the study of interstate status perceptions, in the EU and elsewhere. Given the difficulty of finding practical ways of measuring status, the approach proposed here is a contribution to the literature on social hierarchy and status in politics and IR (Paul et al., 2014; Pouliot, 2016; Renshon, 2016; Rhamey and Early, 2013; Volgy et al., 2011; Wood, 2013).

As such, the group picture approach expands the repertoire of tools available to researchers analyzing questions of status. It provides a useful supplement to conventional proxies based on diplomatic networks or material capabilities. As witnessed in the above empirical analysis, when used in conjunction with such proxies, the approach proposed here should allow the researcher to cross-validate results and discern additional nuance in interstate status perceptions.

The group picture approach is particularly suited to support the analysis of status hierarchies among small- to mid-sized groups of similar countries, where conventional proxies may fall short. For example, since nearly all EU members have diplomatic representation in all other member states, a measure of intra-EU status perceptions based on diplomatic connectivity would exhibit little variance. In other words, while a proxy based on diplomatic connectivity would be useful for placing the European countries in a global status hierarchy, it can have limitations as a stand-alone measure of local status hierarchies within Europe or other similar groupings. Hence, in situations where the interest lies in discerning status hierarchies among smaller subsets of countries with constrained variation on conventional proxy variables, group picture data provide a valuable supplement.

Naturally, the viability of the approach depends on the empirical context. Some clear limitations present themselves. With regard to the EU, assuming current meeting arrangements remain in place, the primary domain of applicability is the period before 2007. Beyond the EU, since group photos that gather all international leaders are rare and infrequent,[10] the approach will rarely allow for status comparisons at the global level. These limitations notwithstanding, the approach should be applicable to any constellation of countries with frequent diplomatic contacts at the most senior level, as long as meetings generate intelligible 'family photos' with reasonable regularity. This would include not only the

EU, but other regional organizations (e.g. the Association of Southeast Asian Nations, the African Union or the League of Arab States) and not only the G-20, but similar informal gatherings among other countries (e.g. the Non-Aligned Movement). The approach could also be extended to the domestic level, to study hierarchies in national cabinets, political parties or other organizations that disseminate group pictures.

The study has thrown up a number of issues for future research. First, one question that would help calibrate the methodological utility of the group photo approach is to assess the degree to which placement data is sensitive to status volatility. A measure that can capture short-term fluctuations in status perceptions can provide a better complement to proxies based on structural variables where change can be discerned only in the long-term. Second, to gauge the variety of factors that can influence placement, it would be useful to determine to which extent hosts use prominent placement in group pictures to advance strategic interests or to develop relationships. The present study included a measure of trade interests, but future studies can investigate a wider range of measures or examine the question qualitatively. Third, research should seek to determine whether the placement in photographs can be understood as status-enhancing, akin to monumental buildings or Olympic efforts (cf. Rhamey and Early, 2013), or whether it mainly reflects underlying conceptions of status. The perspective here, in line with a more limited aim, was cautious, viewing placement primarily as an indicator of underlying hierarchies. But it may be that prominent photographic placement can indeed be employed to generate status anew.

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Supplemental Material

Supplementary material for this article is available online.

Notes

1. See Renshon (2016) for a discussion.
2. Centrality is not the only way to express status. Status may be expressed via a range of features, including clothing (such as certain togas reserved for elite Roman citizens), accessories (such as a crown), or symbols (such as military insignia). In images, status may not only be articulated via location, but also by technical adjustments. For example, a high-status individual may be depicted in a larger size, as in Holbein's depiction of the English King Henry VIII (1543-47), or by way of high-lighting, as in Pilo's painting of the coronation of Swedish King Gustav III in 1772, where the king sits on a throne, magically illuminated, with other participants dwelling in the shadows.
3. Empirically, it appears that most leader family photos are organized via governed processes, rather than as 'free-for-all' status grabs.

4. The majority of meetings are documented and available at: http://ec.europa.eu/avservices/photo/. I gathered data on 14 further meetings from other sources. For a small number of meetings, pictures were unavailable. Missingness is uncorrelated with time or place.
5. Interview, Head of Protocol Services, General Secretariat of the Council of the EU, 23 November 2015.
6. For full data on countries and individual leaders, see the Online appendix.
7. The possible exception is the central placement of female leaders. Since the studied photographs suggest that women leaders rely on a more expansive color repertoire, we cannot rule out that their central placement is partly due to aesthetic considerations (e.g. to achieve a 'splash of color' in the center of a grey- or navy-clad majority; cf. Norris, 1996).
8. Full data is available in the Online appendix.
9. See discussion above about the correlation between population and GDP. The results for population are robust to excluding the GDP variable.
10. Examples known to the author are from United Nations (UN) summits in 1995, 2000 and 2005.

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