

The Invisible Majority: Rethinking Acculturation and Incorporation

Abstract

Political science has often measured acculturation as if heritage and American cultural attachments are mutually exclusive, so that stronger attachment to one implies weaker attachment to the other. This paper tests that assumption directly. Applying comparative cluster analysis to the 2006 Latino National Survey (N = 4,785), with replication in the 2016 Collaborative Multiracial Post-Election Survey, I identify four distinct acculturation orientations among Latino voters. Two are the familiar poles of assimilationist and culture-affirming attachment. The other two are hybrid orientations, bicultural and demicultural, and together they describe more than three-quarters of the sample. These findings show that the limits of binary acculturation are not only theoretical but empirical. The dominant pattern among Latino voters is not movement toward one culture and away from another, but the blending of both.

Keywords: acculturation, biculturalism, Latino politics, Latino identity, cluster analysis

Word Count: 7,051

The Invisible Majority: Rethinking Acculturation and Incorporation

As migration makes societies more diverse, understanding how immigrant-origin populations navigate incorporation has become central to political and social analysis.

Acculturation offers one way to study that process. Traditionally defined as “those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact” (Redfield et al. 1936, p. 145), acculturation examines how individuals negotiate their relationship to heritage and dominant cultures over time (Chirkov 2020).

Yet political science has not fully drawn on the potential of acculturation theory. The field has often assumed that immigrant-origin individuals face a zero-sum choice between adopting the dominant culture and preserving a heritage culture. I call this assumption binary acculturation, the treatment of heritage and dominant culture as mutually exclusive, where attachment to one implies distance from the other. This framework reflects colonial logics of incorporation that cast cultural retention as a barrier to belonging. Political science absorbed that logic into its measures without directly testing whether the binary assumption holds.

By design, binary acculturation provides no conceptual space for hybridity. Hybridity refers to the combining and mixing of cultural forms and identities, rejecting the premise that group identities are homogeneous, fixed, or mutually exclusive (Verkuyten 2018). As an umbrella term, it includes biculturalism, where individuals retain a prior cultural membership while acquiring a new one. Belonging is therefore additive rather than a choice between one culture or the other. Binary acculturation forecloses this space through measurement. For decades, the field has relied on proxies such as language competence and generational status, which are better understood as indicators of assimilation than acculturation (Kim and Berry 1985; Ryder et al. 2000). This builds the binary assumption into the research design, making

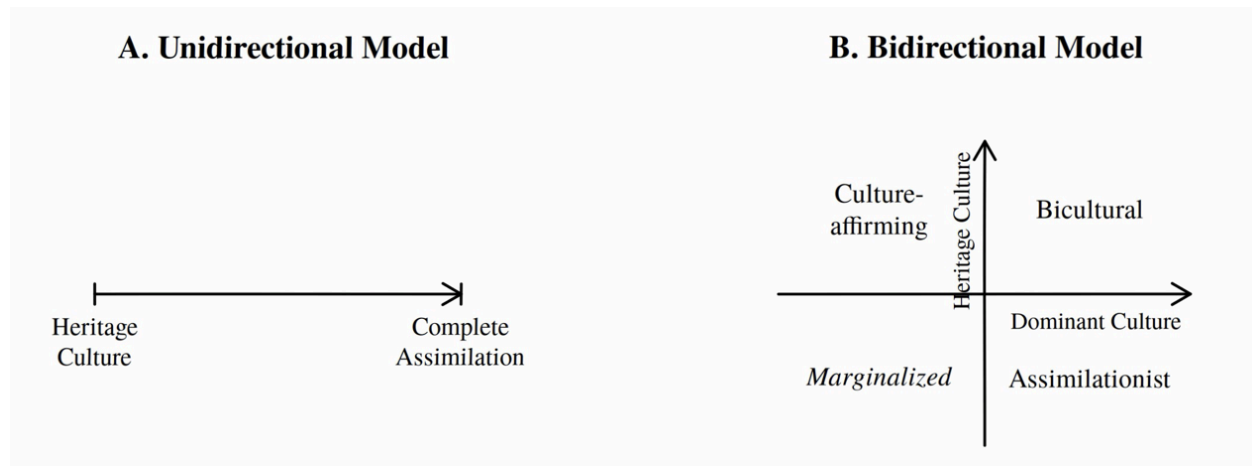
hybridity undetectable before analysis begins. The question is whether immigrant-origin individuals actually follow binary acculturation when the measure does not force that trade-off.

This reliance on binary assumptions and unidimensional measures is not an isolated pattern. A review of Latino-focused political science research that uses acculturation as an explanatory measure in quantitative or empirical analysis identified 26 studies, and every one relies on measures that reproduce binary acculturation. None directly measures hybridity (see Appendix A for the complete PRISMA-guided review). The gap becomes consequential when placed alongside a substantial body of work that treats hybridity as central to the immigrant-origin experience. Scholars of the borderlands have long described the liminality of Latino life, where individuals constantly straddle cultures and create a new consciousness in the process (e.g., Anzaldúa 1987; Saldívar 1991). This scholarship, which treats biculturalism as a coherent and stable mode of being rather than an anomaly (Benet-Martínez et al. 2002), is difficult to capture within the discipline's dominant framework. This creates an important tension. Does Latino incorporation follow the binary choice political science often assumes, or does it reflect the hybridity this scholarship describes? This tension makes Latinos a useful critical case for putting binary acculturation to an empirical test.

Testing binary acculturation requires a direct comparison of the two competing frameworks that shape how acculturation is measured. Binary acculturation is the product of an underlying unidirectional framework, depicted in Figure 1A. Though presented as a neutral description of cultural change, the framework is deterministic by design. It establishes assimilation as the sole endpoint of incorporation and treats heritage cultural erasure as a necessary step toward it. This leaves no room for lasting cultural difference and builds a

hierarchy that privileges the dominant culture, so that retaining a heritage culture registers as resistance to incorporation.

Figure 1. Conceptual Models of Acculturation



In contrast, a bidirectional framework pioneered by John W. Berry (1980, 1997) emerged in psychology over forty years ago and is now widely used across many disciplines. This paper builds on it to develop and test a Bidirectional Acculturation Model (BAM) against binary acculturation. The model's central distinction is that it treats heritage and dominant attachments as two independent dimensions. This makes the relationship between the two attachments an empirical question rather than a measurement assumption, allowing individuals to vary in their attachments to both cultures at once. Multiple orientations therefore become possible, including hybrid ones where both attachments coexist. Because BAM privileges no single orientation, it allows acculturation to be studied without treating assimilation as the presumed endpoint. Figure 1B illustrates the model, and Table 1 summarizes the differences between the two frameworks.

Table 1. Comparison of Unidirectional and Bidirectional Frameworks

Feature	Unidirectional Framework	Bidirectional Framework
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Core Logic	Acculturation is a zero-sum trade-off.	Heritage and dominant attachments are independent.
Relationship to Assimilation	Conflates acculturation with assimilation.	Treats assimilation as only one of several possible outcomes.
Treatment of Hybridity	Structurally incompatible with hybridity.	Acknowledges hybridity as a coherent, possible orientation.
Implied Endpoint	"Complete assimilation" is the successful endpoint.	Allows for multiple, stable acculturation orientations and favors no specific orientation.

The clear conceptual distinction between these two frameworks turns the debate from a theoretical dispute into an empirical test. Adjudicating which model better reflects the structure of acculturation is critical, as the validity of decades of political science research rests on binary acculturation, a foundational assumption the field has not tested. The central empirical question, therefore, is whether binary acculturation holds. This leads to two competing hypotheses. The binary hypothesis (H1) predicts that the data will be characterized exclusively by the two orientations of culture-affirming and assimilationist. In contrast, the bidirectional hypothesis (H2) predicts the emergence of multiple orientations, including a bicultural orientation, which would directly falsify binary acculturation. The following analysis is designed to adjudicate these competing hypotheses.

Conducting this test requires overcoming a significant obstacle. Existing data are limited. Most political surveys, even contemporary ones, are shaped by the very assumption this paper questions. They either rely on demographic proxies like language or generation, or use questions that force a trade-off between cultures. Either choice builds binary acculturation into the instrument, leaving hybrid orientations undetectable before analysis begins. The 2006 Latino National Survey (LNS) is uniquely suited because it measures the strength of heritage and dominant attachments independently, without assuming a relationship between them (see

Appendix B for how the LNS compares to other large political surveys). The LNS also captures two psychological dimensions. Intercultural identity captures expressed identification with both cultures, while aspirational attitudes capture desired orientations toward each. Together they reveal whether the data reflect a binary or hybrid structure.

To analyze these data, this study uses comparative cluster analysis, which turns an exploratory method into a confirmatory test for theory adjudication. The core insight is that different clustering algorithms encode different assumptions about data structure (Jain 2010). Rather than relying on a single specification, this study compares results across multiple algorithms to assess whether the recovered structure is stable across different modeling assumptions (Grimmer and Stewart 2013). When algorithms with divergent mathematical foundations converge on the same structure, that convergence is evidence that the pattern is a genuine feature of the data, not an artifact of any single algorithm's assumptions. Combined with bootstrapping and cross-validation, this supports inference about which model, binary or bidirectional, better describes the underlying structure of acculturation.

The results provide strong evidence against binary acculturation. The cluster analysis reveals four distinct acculturation orientations among 4,785 Latino voters, and most fall into two hybrid ones. A bicultural group, 68.4% of the sample, shows strong attachment to both Latino and American cultures. A demicultural group, another 7.9%, shows moderate ties to both. Together these two hybrid groups account for over 75% of the sample. The only orientations binary acculturation anticipates, culture-affirming (9.0%) and assimilationist (14.7%), cover less than a quarter of Latino voters. A replication using the 2016 Collaborative Multiracial Post-Election Survey confirms the pattern a decade later, with biculturals again the majority (see

Appendix E). Over three-quarters of Latino voters hold some form of dual cultural attachment, a reality that binary acculturation erases.

These findings do more than add categories to a typology. They challenge how political science understands immigrant incorporation. Binary acculturation does not just underperform. It fails to capture the orientation most Latinos actually hold. It imposes a zero-sum opposition between heritage and American culture where none exists. Because the assumption is built into the measure, it cannot register hybridity no matter how sophisticated the analysis becomes, and the populations most affected are those whose incorporation the field most wants to understand. A bidirectional model removes that false opposition and lets the field measure incorporation without imposing a zero-sum structure, at a moment when questions of immigrant belonging carry real political weight.

The paper proceeds in three parts. The first traces how binary acculturation became entrenched in political science, reproducing colonial logics of incorporation through path-dependent measurement. The second presents the empirical test, with Latinos as the critical case, the 2006 LNS as the instrument, and comparative cluster analysis as the method. The third interprets the findings and their implications for how political science conceptualizes incorporation, measures acculturation, and understands identity amid the country's growing multicultural complexity.

Binary Acculturation: From Colonial Logic to Contemporary Practice

How did binary acculturation become the default framework for the study of immigrant incorporation in political science? The answer unfolds across three linked developments. First, colonial-era classification systems established cultural hierarchy as a core logic. Second, political science absorbed that logic and built it into its measures. Third, path dependence locked it in

place through proxies that make hybridity invisible. Understanding this trajectory shows why binary acculturation became so entrenched.

Colonial Origins

Binary acculturation has roots in colonial-era classification systems that sorted populations by their perceived capacity to assimilate to a dominant European norm (Silliman 2005; Wolfe 2006). The sorting was never a neutral account of cultural contact. It ranked populations by their presumed fitness to belong, treating proximity to the dominant culture as the measure of worth and cultural difference as a deficit to be overcome (Rudmin 2009; Herskovits 1937). Groups closer to the European norm were read as more assimilable, and the further a population sat from that norm, the more its own cultural forms were taken as evidence of backwardness (Ngai 2004; Jacobson 1998) rather than difference. Even as anthropologists defined acculturation as the study of “continuous first-hand contact” (Redfield, Linton, and Herskovits 1936, 149), in practice the framework functioned as this hierarchy, separating populations deemed capable of assimilation from those deemed incapable.

The Chicago School formalized this logic in U.S. immigration scholarship, with Robert E. Park arguing that social cohesion required the elimination of cultural difference and that cultural retention threatened social order (Park 1914, 606–609). This inheritance was consistent with a broader disciplinary history in which racial hierarchy and scientific claims about human difference shaped the early development of American political science itself (Blatt 2018). A version of this logic resurfaces in contemporary debates over Latino incorporation, where Latino cultural retention is sometimes cast as a threat to an Anglo-Protestant national identity (Huntington 2004). Full conformity through straight-line assimilation became the only theorized

path to belonging. Political science absorbed this framework, and its measurement practices have kept it in place ever since.

Evidence of Path Dependence

Despite more than a century of scholarship after the Chicago School and more than forty years since Berry introduced the bidirectional model, contemporary political science continues to rely overwhelmingly on binary acculturation. To gauge the extent of this path dependence, this study conducted a systematic review of contemporary acculturation scholarship following the PRISMA methodology (see Appendix A for full details). The review identified 26 studies focusing specifically on Latinos, acculturation, and political outcomes. Every one operationalizes acculturation through a binary, assimilationist logic, and not one measures heritage and dominant attachments independently, the baseline design choice the bidirectional model requires.

Table 2 summarizes the findings. All 26 studies (100%) rely exclusively on proxy measures, with language proficiency (69%) and generational status (58%) the most common.

Table 2. Acculturation Measurement Practices in Political Science (N = 26)

Measurement Characteristic	N	%
Total studies reviewed	26	100%
<i>Measurement approach</i>		
Uses proxy measures only	26	100%
Measures heritage/dominant independently	0	0%
<i>Conflation with assimilation</i>		
Treats acculturation as unidirectional	26	100%
<i>Most common proxy measures*</i>		
Language proficiency	18	69%
Generational status	15	58%
<i>Dimensions captured</i>		
Behavioral only	22	85%
Psychological (identity, values)	7	27%

Note: Studies typically used multiple proxies; percentages reflect proportion using each type. Source: Systematic review following PRISMA methodology (see Appendix A for full details).

This pattern matters for two reasons. First, the majority of studies (85%) capture only behavioral dimensions of acculturation, such as language use or residence patterns, while neglecting psychological dimensions like identity or values. When studies do attempt to measure psychological dimensions (27%), the measures remain tethered to binary proxies rather than capturing independent cultural attachments. Second, the clustering of proxies around language proficiency (69%) and generational status (58%) means the subfield repeatedly tests acculturation using measures that already presume assimilationist movement.

The Proxy Measurement Trap

The field-wide reliance on demographic and behavioral proxies creates a methodological trap in which the tools used to study acculturation predetermine what can be found. Language use, generational status, and years of residence all share the same structural defect. They place individuals on a single, unidimensional scale where movement toward English proficiency, later generations, or longer residence automatically signals movement away from heritage culture. A scale that runs from heritage attachment to dominant attachment on a single axis mathematically collapses anyone high on both dimensions and anyone low on both into the same midpoint, rendering two of four possible orientations invisible before analysis begins.

Beyond structural limitations, the proxy approach suffers from a fundamental validity problem. Acculturation is a psychological process of navigating cultural differences and managing competing cultural systems (Chirkov 2009). Reducing it to observable behaviors or demographic markers treats acculturation as something that happens to people rather than a process they actively navigate (Doucerein et al. 2017; Skuza 2007). Language use, for instance, can reflect institutional pressures like English-only policies and workplace demands, not

necessarily psychological orientation toward cultural systems. Generational status marks the temporal distance from immigration but "reveals little about how specific changes, such as language acquisition and loss, changing social networks, and evolving cultural values, may relate to ethnic identity" (Phinney 2003, 65).

The field's reliance on these proxies reproduces the same unidirectional logic no matter how sophisticated the measure. Studies that use language proficiency as a proxy code a bilingual respondent as halfway between two poles rather than as someone with dual competencies (de la Garza, Falcón, and García 1996; Michelson 2003). Studies that use generational status define a second-generation respondent as partially acculturated rather than potentially bicultural (Branton 2007; Pérez 2015). In each case the measure registers only movement away from the heritage culture, so distance from immigration stands in for cultural change. The pattern persists in the most recent work. A 2024 study of Latino racial attitudes, after explicitly weighing direct against proxy measurement, still operationalizes acculturation as a single additive index of generation, language, and citizenship (Robertson and Roman 2024).

The defect, then, is not a lack of refinement but the single axis itself. Any measure that places heritage and dominant culture at opposing ends of one scale has already decided they are opposites. A person cannot score high on both, because the scale offers no position for it, so a gain on one side can only register as a loss on the other. The trade-off is not something these studies find in the data. It is built into the instrument before the data are collected, then reported as though it were a result. Whenever the two are not measured independently, acculturation is effectively measured as assimilation, and hybridity cannot surface.

Removing the opposition between heritage and dominant culture changes the theoretical object. Acculturation is no longer a measure of how far immigrant-origin individuals have

moved from one culture toward another. It becomes a question of how they organize multiple cultural attachments at once. When those attachments are measured independently, the full range of acculturation orientations becomes visible, including attachment to both cultures, neither culture, or primarily one culture. This reframing shifts the question from whether individuals are more or less assimilated to whether the binary model accurately describes their acculturation orientations at all. The task, then, is to test whether that assumption holds once heritage and dominant attachments are allowed to vary independently.

Empirical Strategy

Testing the binary assumption requires three critical elements. It requires a population where hybrid orientations are theoretically possible, measures that can detect them, and an analytic strategy that lets patterns emerge. The combination of Latinos as the test case, the 2006 LNS as the measurement instrument, and comparative cluster analysis as the analytical framework provides the first systematic empirical test of political science's binary assumption of acculturation.

Latinos as the Critical Case

Empirically testing political science's binary assumption requires a critical case where structural conditions could plausibly produce hybrid orientations. Latinos in the United States represent such a case because they occupy a structural position shaped by two simultaneous forces, racialization and immigrant replenishment. Racialization is the process by which a group is marked as racially distinct and subjected to differential treatment (Omi and Winant 2015). For Latinos, racialization operates through legal, economic, and cultural mechanisms that cast them as perpetually foreign, regardless of citizenship or generational status (Haney-López 2006; Ngai 2004). This persistent "othering" constrains access to the kind of full incorporation that was

eventually accessible to earlier Anglo-European immigrant groups (Ignatiev 1995; Almaguer 1994). At the same time, immigrant replenishment from Mexico and Latin America continually revitalizes heritage cultural practices and social networks, keeping heritage cultures accessible and relevant for later generations (Jiménez 2010). Together, racialization and replenishment create structural conditions in which Latinos must continually navigate both heritage and dominant cultural systems. Acculturation is therefore a sustained and central feature of the Latino experience, not a transitional phase.

Beyond this theoretical rationale, the Latino population offers important methodological advantages for this study. First, the population's significant internal heterogeneity across national origin, generation, geography, and socioeconomic status makes the empirical test more demanding. When acculturation orientations emerge from such a diverse population, those patterns are less likely to reflect only one subgroup or context (Campbell and Stanley 1963; Gerring 2007). Second, the presence of multiple co-existing generations allows the analysis to capture individuals across the full range of potential acculturation experiences within the same contemporary political context, making it possible to distinguish acculturation orientations from simple generational replacement. Combined with extensive validation procedures, this sample composition provides a particularly demanding test of the binary framework.

Although Latinos represent the critical first test, the same logic may extend to other racialized immigrant-origin populations, including Black immigrants, Asian Americans, and Muslim Americans, whose incorporation is also shaped by the tension between racialization and heritage cultural maintenance. The Latino case therefore offers a focused test of a broader theoretical claim about immigrant-origin incorporation.

The 2006 LNS

The 2006 Latino National Survey (Fraga et al. 2006) independently measures heritage and dominant cultural attachments without forcing a trade-off between them. The survey interviewed self-identified Latinos across 15 states representing 87.5% of the U.S. Latino population. This analysis focuses on the 4,785 eligible voters within the full sample, providing sufficient statistical power for detecting distinct acculturation patterns. As operationalized in Figure 2, the LNS measures American identity strength and heritage identity strength as separate variables. Heritage identity captures the respondent's strongest attachment across both pan-ethnic (Latino/Hispanic) and national-origin identities (Mexican, Puerto Rican, etc.). The survey asks separate questions about the strength of each identity, and the analysis uses whichever attachment the respondent reports as stronger. This approach reflects how Latinos often self-identify, as many identify more strongly with national origins than with pan-ethnic labels (Pérez and Cobian 2024; Taylor et al. 2012).

The survey also measures aspirational attitudes about language and cultural maintenance, which capture a conceptually distinct dimension of acculturation. Identity centrality items measure psychological attachment to cultural groups, while aspirational items capture desired orientations toward cultural and linguistic maintenance. Combining the two is deliberate rather than a conflation. They tap distinct facets of acculturation, who individuals feel they are and what they want to preserve or adopt, and they enter the analysis as separate dimensions rather than a single collapsed index. This distinction matters because observed behaviors, especially language use, can be shaped by institutional pressures and assimilationist expectations, obscuring the cultural attachments individuals may still value, maintain, or wish to transmit. Treating identity and aspiration as one scale would reproduce the unidimensional move this study sets out to test.

Figure 2. 2006 LNS Operationalization for Bidirectional Model

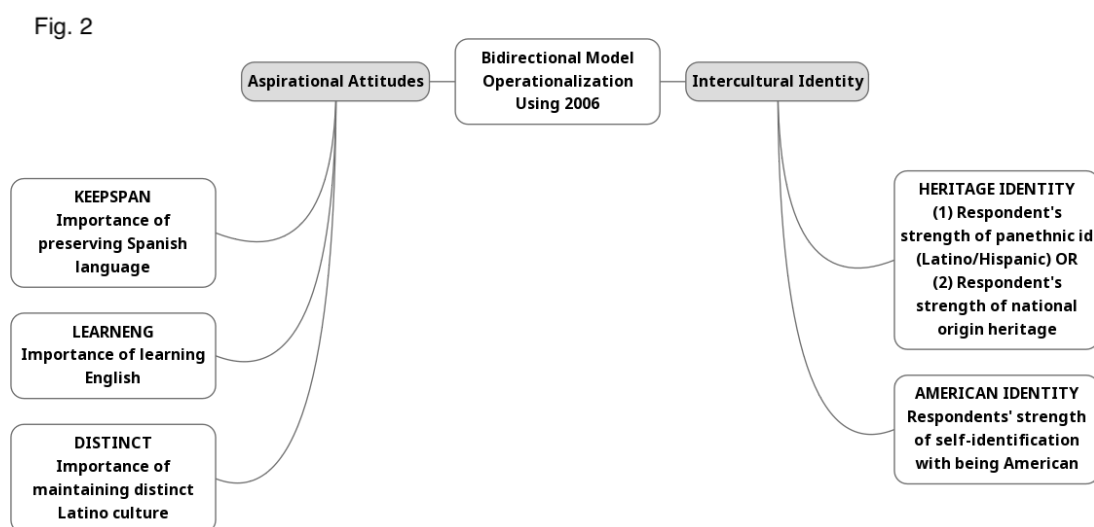


Table 3 compares identity measurement capability across major Latino political surveys. Contemporary surveys either measure heritage identity strength without American identity (CMPS 2020, Pew NSL 2021–23), or measure both but force respondents into pan-ethnic categories without capturing national-origin identity strength (ANES 2024). The LNS uniquely combines independent measurement of American identity with heritage identity that honors both pan-ethnic and national-origin attachments (see Appendix B for detailed comparison). The 2016 CMPS provides the closest parallel, measuring both American and ethno-racial identity centrality independently, and is used as a replication dataset in Appendix E. Beyond these two surveys, no major political survey has replicated this bidirectional measurement approach.

Table 3. Identity Measurement Across Major Latino Political Surveys

Survey	Heritage Identity Measured	American Identity Measured	Detects Bicultural Patterns
LNS 2006	Pan-ethnic + national-origin, both with strength scales	Yes, strength scale	Yes, independent measures of strongest heritage identity and American identity

CMPS 2016	Pan-ethnic + national-origin, both with strength scales	Yes, strength scale	Yes, bicultural majority confirmed in both datasets. Full four-quadrant structure replicates under the three-variable specification (see Appendix E)
ANES 2024	Pan-ethnic only, strength scale	Yes, strength scale	Limited, forces “Hispanic” label and lacks national-origin strength
Pew NSL 2021–23	Pan-ethnic, strength scale + label preference	No	No, missing American identity component
Hispanic Federation 2024	National-origin, demographic only	No	No, no identity strength measures

Note: ANES 2024 is limited because it does not measure national-origin identity strength. See Appendix B for detailed comparison of identity measurement across surveys.

The choice of the 2006 LNS is driven by measurement capability rather than temporal context. The survey remains the most comprehensive bidirectional instrument available for testing whether the binary assumption holds, and the CMPS 2016 replication (Appendix E) confirms that the patterns identified here are stable across a decade of political change.

Comparative Cluster Analysis

Comparative cluster analysis provides a well-suited framework for testing competing acculturation models. The goal is to identify whether respondents organize into the two orientations predicted by binary acculturation or into multiple orientations predicted by the bidirectional model. Regression analysis requires already knowing what orientations exist to test relationships between variables, making regression unsuitable for discovering typologies. Factor analysis can identify whether heritage and dominant attachments are independent dimensions, but it cannot show how individuals combine those dimensions into distinct acculturation orientations. Cluster analysis is better suited to this task because it identifies groupings in the data without imposing predetermined categories or requiring advance knowledge of how many orientations exist.

Standard cluster analysis is exploratory. This study embeds it in a comparative validation framework that transforms clustering into systematic theory testing. The framework tests five

algorithms with different mathematical foundations, evaluates performance using established statistical criteria, and validates results through resampling. This design allows the analysis to assess whether the recovered orientations are stable across methods and whether the resulting structure is more consistent with binary or bidirectional acculturation. As Table 4 shows, the process moves from data preparation and algorithm comparison to performance evaluation, validation, and interpretation.

Table 4. Multi-Step Comparative Cluster Analysis

Phase	Step	Evaluative Criteria
Preparation	Data Processing	Ensure data quality and compatibility by addressing missing data, standardization, and feature engineering
Algorithm Selection	Comparative Testing	Identify optimal clustering approach across K-means, GMM, Agglomerative, DBSCAN, and Fuzzy C-means
Initial Evaluation	Quality Assessment	Measure cluster validity using Silhouette Score, Dunn Index, and Calinski-Harabasz Index
Convergence Analysis	Cross-Algorithm Comparison	Verify pattern stability by comparing $k = 3$, $k = 4$, and $k = 5$ solutions across algorithms
Optimal Solution	Final Selection	Balance theory and empirics using statistical metrics, theoretical fit with BAM, and cluster size balance
Validation	Robustness Checks	Assess stability through k-fold cross-validation and bootstrapping
Interpretation	Cluster Profiling	Map clusters to theoretical constructs by comparing cluster means to BAM expectations

Note: Each phase includes specific evaluative criteria to ensure reliable cluster identification and validation.

The comparative design employs five clustering algorithms, each encoding distinct assumptions about the geometry and distribution of clusters (Hennig et al. 2016). K-means assumes clusters are spherical and equally sized, partitioning observations by minimizing within-cluster variance (MacQueen 1967). Gaussian Mixture Models allow clusters to vary in shape, size, and orientation through flexible covariance structures (McLachlan and Peel 2000). Fuzzy C-means permits probabilistic membership, allowing observations to belong partially to multiple clusters (Bezdek 1981). Agglomerative clustering builds a hierarchical tree structure, revealing nested relationships without pre-specifying the number of groups (Ward 1963).

DBSCAN identifies clusters based on local density, making no distributional assumptions and flagging isolated observations as noise (Ester et al. 1996). Because these algorithms impose different assumptions on the data, convergence across them provides evidence that the recovered pattern is not an artifact of a single specification (Jain 2010; Grimmer and Stewart 2013). The theoretical predictions follow directly. If the binary assumption holds, algorithms should converge on two clusters at opposing cultural poles. If acculturation operates bidirectionally, algorithms should consistently recover multiple clusters, including hybrid orientations.

The comparative process operationalizes what Campbell and Fiske (1959) termed convergent validation. Applied here, convergent validation means that confidence in the cluster solution increases when different algorithms recover similar groupings. Each algorithm's performance is assessed using complementary metrics. Silhouette scores evaluate within-cluster cohesion relative to between-cluster separation (Rousseeuw 1987). The Dunn index measures the ratio of minimum between-cluster distance to maximum within-cluster diameter (Dunn 1974). The Calinski-Harabasz index assesses the ratio of between-cluster to within-cluster variance (Calinski and Harabasz 1974). No single metric is definitive, and their joint consideration guards against optimizing on one criterion at the expense of others (Hennig et al. 2016). When a solution appears across algorithms, performs well across multiple validity metrics, and remains stable under resampling, the resulting inference rests on stronger evidence than any single clustering procedure could provide.

These methodological choices ensure that whichever acculturation patterns emerge from the analysis can be interpreted with confidence. The measurement strategy captures heritage and mainstream orientations independently, the analytical approach allows patterns to emerge

without predetermined structures, and the validation procedures confirm stability across multiple tests.

Results

Cluster Solution Selection

The comparative cluster analysis was designed to test whether acculturation patterns support the binary hypothesis (H1) or the bidirectional hypothesis (H2). Five clustering algorithms were applied to the data across a range of possible solutions. The results provide strong evidence against the binary model. No algorithm produced a stable two-cluster solution consistent with H1. Instead, the analysis consistently converged on a four-cluster solution, with two distinct hybrid orientations, a pattern inconsistent with the zero-sum logic of the binary framework.

The comparative design generated evidence at two levels, algorithm performance and convergence across methods. Full implementation details are available in Appendix D. DBSCAN tested whether apparent patterns reflected noise rather than genuine structure, while Fuzzy C-means tested whether acculturation orientations were better characterized as overlapping tendencies rather than discrete groups. Both proved less suitable for the final solution. In contrast, K-means, Agglomerative clustering, and Gaussian Mixture Models consistently performed well despite relying on different assumptions about cluster shape, membership, and distribution (Jain 2010). K-means assumes compact clusters of roughly similar size. Agglomerative clustering reveals hierarchical structure without imposing a distributional form. GMM allows clusters to vary in shape, size, and orientation. The fact that these different methods converge on the same four-cluster solution strengthens confidence that the pattern is not an artifact of any single algorithm (Grimmer and Stewart 2013).

As shown in Table 5, the four-cluster GMM solution emerged as the most stable and interpretable. While its cohesion scores were moderate, convergence across the three best-performing algorithms was the critical finding. K-means and GMM produced nearly identical four-cluster solutions with comparable statistical properties.

Table 5. Metrics for the Optimal k=4 GMM Clustering Solution

Metric	Value	Robustness Measure
Silhouette Score	0.36	The average cross-validation score was 0.34.
Dunn Index	0.06	The bootstrap 95% CI was [0.05, 0.07].
Calinski-Harabasz Index	1063.27	The average cross-validation score was 1050.12.
Cluster Sizes	433, 705, 378, 3269	Bootstrap variation included ± 50 , ± 70 , ± 40 , ± 200 .

Note: Metrics evaluate $k = 4$ GMM clustering of standardized acculturation variables. While scores indicate moderate cohesion, convergent performance across three algorithms and bootstrapped CIs (0.34 to 0.39) support confidence in the stability of the solution. Source. 2006 Latino National Survey (LNS, $N = 4,785$).

Four Emergent Acculturation Orientations

The analysis revealed four distinct acculturation orientations, a finding that strongly rejects the binary hypothesis (H1) and supports the bidirectional hypothesis (H2). The four profiles are displayed in Figure 3, with their specific characteristics detailed in Table 6. The emergence of four groups, with more than 75% of respondents occupying hybrid space, provides strong evidence that heritage and mainstream cultural attachments operate as independent dimensions.

Figure 3. Radar Chart of Cluster Means (k=4, GMM)

Fig. 3

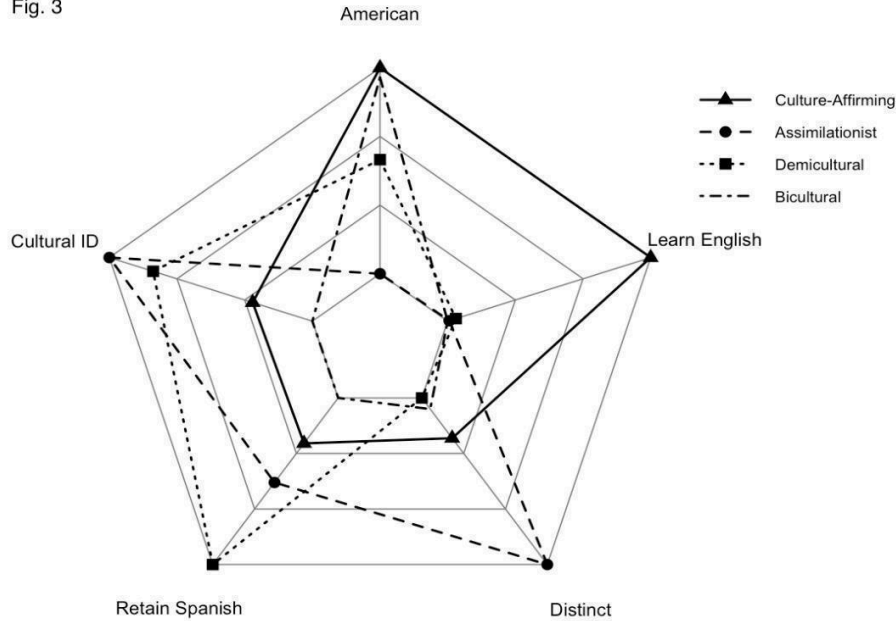


Table 6. Mean Values of Acculturation Variables by Cluster

Cluster	American Identity	Cultural Identity	Retain Spanish	Maintain Distinctiveness	Learn English	Size
Culture-affirming	3.23	3.41	3.64	2.71	2.77	433
Assimilationist	3.88	3.05	3.33	1.80	3.99	705
Bicultural	3.26	3.56	4.00	2.92	4.00	3269
Demicultural	3.52	3.16	2.68	3.00	3.95	378

Note: Cluster means reflect $k=4$ GMM clustering of acculturation variables. All variables are measured on 4-point scales. Source: 2006 Latino National Survey (LNS).

Two of the four groups correspond to the binary model's predictions, together comprising only 23.7% of the sample. The first is the assimilationist orientation (14.7%), characterized by high American identity ($M = 3.88$), strong desire to learn English ($M = 3.99$), and moderate heritage identity ($M = 3.05$). The second is the culture-affirming orientation (9.0%), displaying strong heritage identity ($M = 3.41$), a high desire to retain Spanish ($M = 3.64$), and moderate American identity ($M = 3.23$). These two orientations are the only patterns the binary framework

accounts for. By contrast, more than three-quarters of respondents fall into two hybrid orientations that the binary framework cannot detect.

The largest group is the bicultural orientation, which consists of 68.4% of all respondents. This profile is defined by high engagement with both cultures. Respondents in this group expressed maximum support for both retaining Spanish ($M = 4.00$) and learning English ($M = 4.00$), alongside strong heritage identity ($M = 3.56$). The predominance of this group is difficult to reconcile with the central claim of binary theory, which treats heritage and mainstream culture as incompatible or mutually exclusive.

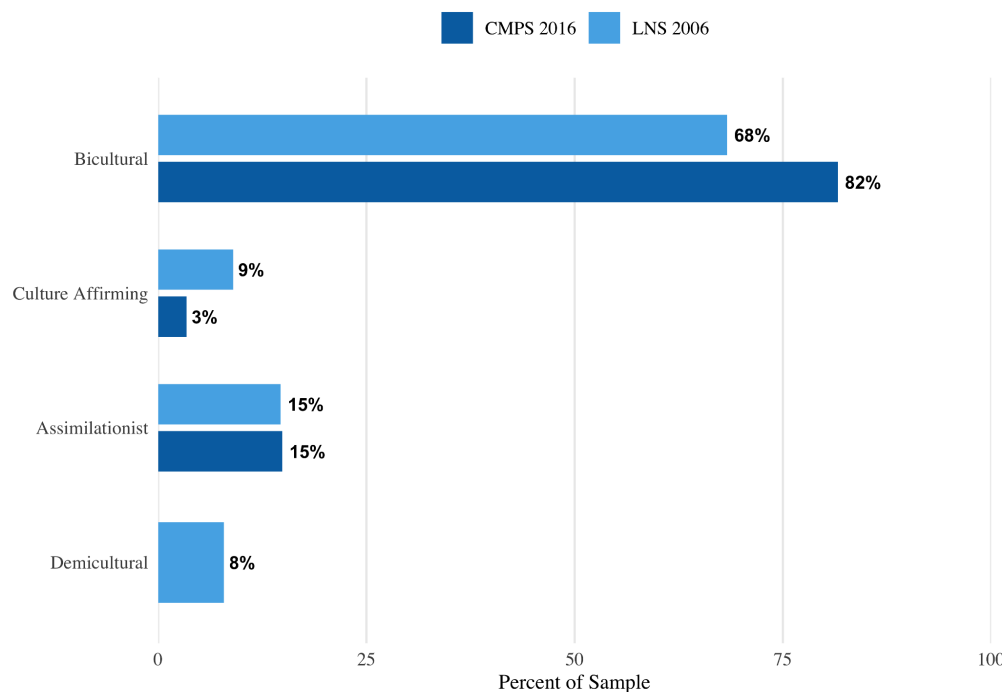
The analysis also revealed a second, less visible hybrid group, the demicultural orientation (7.9% of the sample). This group reports moderate attachment to both cultures, with high American identity ($M = 3.52$) and moderate heritage identity ($M = 3.16$). Cultural aspirations within this group are more varied. A strong desire to learn English ($M = 3.95$) coexists with a substantially lower desire to retain Spanish ($M = 2.68$). This gap between dual identity attachments and asymmetric heritage aspirations is what makes the demicultural profile unique. Together, the bicultural and demicultural groups show that hybrid acculturation is not a marginal feature of the Latino electorate but its dominant pattern in the LNS.

CMPS 2016 Replication

To assess whether these patterns hold beyond the LNS, the cluster analysis was replicated using the 2016 Collaborative Multiracial Post-Election Survey ($N = 1,816$ registered Latino voters). Using corresponding measures of American and ethno-racial identity centrality, the replication tested whether a similar bidirectional structure emerges in an independent sample collected a decade later. Figure 4 compares orientation distributions across both datasets. The bicultural orientation again comprised the majority of the CMPS sample (81.6%), and the

assimilationist share was nearly identical across datasets (14.9% vs. 14.7%). The culture-affirming orientation appeared in both samples, though at a smaller share in the CMPS (3.4% vs. 9.0%). The two-variable specification (Spec A) did not recover a demicultural cluster in the CMPS, though a three-variable specification that added national-origin identity centrality recovered all four quadrants (see Appendix E, Table E1). The replication therefore confirms the central result that, across two independent datasets, biculturalism is the dominant orientation and the binary model fails to account for the majority of Latino respondents.

Figure 4. Orientation Distribution Across LNS 2006 and CMPS 2016



Note. LNS 2006 ($N = 4,785$) and CMPS 2016 Spec A ($N = 1,816$). CMPS 2016 Spec A recovers three of four quadrants. Full replication details are reported in Appendix E.

Limitations

The evidence presented here should be understood as a first empirical test of the bidirectional model rather than a final account of acculturation across all contexts. Its purpose is to establish a baseline for future research while clarifying the scope conditions of the findings.

First, the study relies on the best available survey data rather than a purpose-built instrument for measuring the Bidirectional Acculturation Model. The LNS is uniquely valuable because it measures heritage and American attachments independently and asks about different cultural aspirations without forcing respondents to choose between cultural attachments. Even so, future surveys should capture a broader range of acculturation dimensions, including additional items on cultural aspirations, intergroup attitudes, belonging, and identity formation. Second, the primary analysis is based on data collected in 2006. The CMPS 2016 replication shows that the central pattern, especially the predominance of biculturalism, is not merely an artifact of the LNS. At the same time, the CMPS does not include the same aspirational measures, which limits the extent of the replication. Future data collection should therefore build on the LNS results as a baseline for refining the model and testing whether these orientations persist in more recent political contexts. Third, the analysis focuses on Latinos as the critical case. This is appropriate given the combined pressures of racialization and immigrant replenishment, but the framework should be extended to other racialized immigrant-origin groups. Future research should examine whether similar orientations emerge among Black immigrants, Asian Americans, Muslim Americans, and other groups whose incorporation also involves navigating both heritage and dominant cultural systems. These limitations clarify the scope of the findings and point to the next stage of research.

The Invisible Majority

This study began with a direct test of the binary assumption. The test asked whether Latino acculturation orientations would sort into the two opposing poles the binary model predicts, or whether additional orientations would emerge once the analysis no longer imposed that structure in advance. Cluster analysis is well suited to this task because it identifies patterns

without assigning respondents to predefined categories. Had Latinos sorted into two cultural poles, that structure should have appeared in the data. Instead, the best-performing algorithms converged on four orientations, including two hybrid ones. The same procedure that put the binary to the test therefore recovered a structure the binary framework cannot accommodate.

The two poles the binary describes are real. Some Latinos do lean decisively toward one culture, whether an assimilationist orientation turned toward the dominant culture or a culture-affirming orientation anchored in heritage. Together, however, these two account for only about a quarter of the sample. The remaining three-quarters hold both cultures at once, and they do so in two distinct ways. Biculturals, more than two-thirds of all Latinos, report strong attachment to both heritage and American identity and a strong desire to maintain both. Demiculturals, a smaller group, hold both as well, though more moderately, with attachments and aspirations that vary more from one person to the next. The difference between them matters, because it shows that blending forms a space with its own internal structure rather than a single residual category. The same pattern appears in the 2016 Collaborative Multiracial Post-Election Survey a decade later, suggesting that the finding is not limited to one instrument or one year.

The implications of this structure run in three directions. First, the binary assumption does not hold, and its failure is not modest, because a model built on two categories cannot account for the three-quarters of Latinos who belong to neither. Second, the bicultural majority alone accounts for 68.4% of the sample, and together with the demicultural minority these are the most common ways Latinos live between cultures, the very orientations the binary erases. Third, because acculturation is the lens through which the field studies incorporation, a measure that forecloses these orientations has obscured a central feature of Latino acculturation for as

long as it has dominated the field. The question that follows is why a framework with this record has endured, and what its persistence has meant, which is where the next section turns.

The Cost of Conflating Acculturation with Assimilation

The results reveal the cost of treating assimilation as though it were acculturation. The binary did not come from evidence about how people acculturate. It was inherited from an assimilationist tradition that treated incorporation as becoming fully part of the dominant culture, with heritage expected to fall away in the process. Robert Park made the logic explicit when he described "the race problem" as "a problem in assimilation" (Park 1914, 606), framing the persistence of cultural difference as the problem to be solved rather than the dominant society's demand for conformity. Within that tradition, holding onto heritage was the obstacle and assimilation was the resolution. When the assumption was carried into measurement, it narrowed acculturation to a single question asked of every person, how far they had moved toward the dominant culture and away from their own. Full assimilation became the endpoint built into the instrument, and the standard against which cultural incorporation was assessed.

This is why the conflation matters. Acculturation is a bidirectional process in which both immigrant-origin individuals and the receiving society adapt, yet the binary recognizes movement in one direction only. It measures how far minority-group members have moved toward the dominant culture and treats attachment to both cultures as incomplete assimilation rather than as an acculturation orientation in its own right. In doing so, the measure imports the dominant group's terms of belonging into research that presents itself as objective.

The point is not that assimilation is unworthy of study. A large and important literature examines assimilation, segmented assimilation, and replenished ethnicity on their own terms. Measuring movement toward the dominant culture is a legitimate question with a long and

important place in the study of incorporation. The problem is treating that question as though it were the whole of acculturation.¹ Acculturation is the wider process through which people hold, manage, and assign meaning to multiple cultural attachments (Chirkov 2020). When it is collapsed into assimilation, only one outcome remains visible. Hybridity is foreclosed, and a common orientation is denied recognition as a legitimate one. The framework also strips away agency by treating acculturation as something that happens to people rather than something they actively navigate. Because the assumption lives inside the measure, the data can never fully contradict it, and the error renews itself with every study built on it.

These stakes are not abstract. Immigrant-origin groups have long had their belonging treated as conditional, extended only on proof of cultural conformity. A measure that registers only movement toward the dominant culture recreates that condition within the discipline's own tools and gives it the authority of empirical measurement. The result is not only the mismeasurement of Latinos, and likely other immigrant-origin groups, but also the continued use of a framework that treats cultural difference as a deficit to be overcome.

What the binary forecloses comes into view the moment its central assumption is relaxed. Treating heritage and dominant attachment as independent allows other acculturation orientations to appear and makes visible the agency people exercise in holding two cultures. But a problem built into the measure cannot be solved by refining the same measure. It requires a different standard, which the next section sets out.

From Assimilation to Acculturation

¹ This critique does not reject assimilation research as a distinct agenda. Foundational work on assimilation, segmented assimilation, and replenished ethnicity has advanced the study of immigrant incorporation, mobility, boundary change, and intergenerational adaptation (Alba 1990; Portes and Zhou 1993; Alba and Nee 2003; Jiménez 2010). The claim here is narrower. Assimilation measures should not be treated as measures of acculturation as a broader process of managing heritage and dominant cultural attachments.

The way forward is not to refine the binary but to replace its underlying standard. A measure built on a single scale cannot recover the orientations that the scale itself excludes. Treating heritage and American attachment as independent dimensions changes what the field can ask and what the data are allowed to show. If Latinos had sorted into one dominant cultural pole or the other, a bidirectional model could have recovered that pattern. Instead, the analysis revealed that assimilation is only one orientation among several, and that the most common orientations are hybrid. This does not make assimilation irrelevant. It puts assimilation in its proper place as one possible outcome within a broader account of acculturation. The binary is therefore not simply rejected. It is absorbed as the narrow case of a more general model, one that can identify assimilation when it exists without mistaking it for the whole process.

This shift also restores acculturation to the larger set of questions it was meant to address. Political science has underused acculturation theory because it has too often reduced it to demographic proxies, language behavior, or movement toward the dominant culture. A bidirectional standard opens a different agenda. It allows scholars to examine how people hold multiple identities, how they attach to groups that are often treated as incompatible, how they navigate belonging under conditions of racialization, and how cultural aspirations shape political life. It also creates room for political science to draw more fully from psychology, especially work on group categorization, identity formation, multiple group memberships, and the management of cultural difference. These tools are increasingly necessary in societies where incorporation rarely means movement from one culture into another, and more often involves layered identities, mixed attachments, and ongoing negotiation across cultural worlds. Getting the measure right therefore does more than improve model fit. It gives the field a way to study immigrant incorporation as people actually live it.

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