Quantifying Marginality Across the Globe: An Empirical Assessment of Vigil’s Multiple Marginality Model in Predicting Gang Involvement

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Abstract
Vigil’s multiple marginality (MM) model of gang formation has resulted in hypotheses about why minority youth join gangs, and how these processes play out at multiple levels of analysis and across contexts. However, with a few exceptions, this framework has rarely been tested quantitatively, and especially in countries outside of North America. The current study assesses the MM model using data from the Second International Self-Report Delinquency Study and aggregate country-level data. Results from multilevel analyses reveal some support for the framework, in that at least one measure of each component of the MM model was found to be a significant predictor of gang membership. Controlling for individual and country variables, measures of street socialization exhibited the strongest effects on gang involvement. Yet not all proposed factors were significant predictors across all models. Longitudinal data are necessary to fully support the dynamics of the MM model.

Keywords
multiple marginality, gangs, multilevel models, ISRD-2

Because of the violence that often accompanies street gangs, it is important to understand the fundamental processes that lead youth to join gangs in the first place (Klein, 2007). Fortunately, in their recent article taking stock of gang scholarship, Decker et al. (2013) note that “The last two decades have seen exponential growth in the study of gangs, gang members, and the group processes that make gangs a distinctive group” (p. 369). Yet while the literature has made advances in our understanding of gang joining (e.g., Densley, 2015; Pyrooz & Densley, 2016), there remain unanswered questions regarding the factors that lead youth to become gang-involved. Better
understanding of how these factors and processes vary based on race or ethnicity is also needed, particularly because gang-involved youth in the United States tend to belong to ethnic or racial minority groups (Howell & Griffiths, 2019).

Theoretical development over the past several decades by Vigil (1983, 1988, 2002) has not only produced hypotheses about processes that lead some minority youth to join gangs but also how these processes might play out at multiple levels, which has contributed to a complex model that includes macrolevel social forces, mesolevel neighborhood, school, and family contextual factors, and individual-level psychological constructs. But despite the qualitative research undertaken by Vigil (2002) and others (e.g., Lee, 2016; Page & Marcelin, 2003; Van Ngo et al., 2017) in explaining gang formation and in particular minority gang involvement at multiple levels of analysis, these studies are often limited in their scope by taking place in a single geographic location with members of only one or two minority groups (Krohn et al., 2011). Moreover, empirical assessments of these multilevel and cross-cultural explanatory models of gang formation are needed yet often difficult to test quantitatively due to data or methodology limitations (Freng & Esbensen, 2007). The current study adds value to the growing stock of gang literature by quantitatively assessing one such multilevel model of gang involvement, specifically Vigil’s (2002) multiple marginality (MM) model of gang formation.

At its inception, the MM model intended to explain why Latino youth living in Los Angeles formed or joined gangs. Vigil’s model (1988, 2002) proposed that macrohistorical and macrostructural processes created marginalized groups with disadvantaged ecological/sociological conditions, which weakened social controls and allowed youth to be “street socialized” and form a “street identity.” The author eventually proposed to apply this model to any ethno-racial minority group. Despite multiple qualitative applications of this model to date, there have been relatively few quantitative tests of these concepts. This study aims to extend this literature base by operationalizing Vigil’s (1988) MM concepts and incorporating key macrostructural components into our analyses that have typically been excluded in previous tests. In addition to offering a more complete test of Vigil’s theoretical model, this study answers Klein’s (2007) call for more comparative gang research. Van Gemert and Weerman (2015) found that gang delinquency in Europe is “linked to the marginalized position of migrants youths” (p. 514), suggesting that the MM model could be applicable outside the United States. By leveraging an international delinquency survey, this study ultimately examines whether the processes initially intended to describe Latino youth gang involvement in the United States extend to a more diverse population of youth across different country contexts. In the following sections, we describe Vigil’s MM framework in more detail as well as the studies that have used this framework to date. We will then describe the current study, including the data, methods, and analyses used to answer our main research questions. We discuss our findings in light of Vigil’s model and prior research. In the final sections, we describe some of the limitations of this work and offer some concluding remarks as well as aims for future research.

**Literature Review**

**MM Framework**

Vigil’s (1988, 2002) MM framework describes a sequence of processes that lead to gang formation among ethnic and racial minorities. He describes this framework as a holistic depiction of how gangs form amid multiple social, economic, and cultural barriers. These barriers operate at multiple levels, ranging from macrostructural and macrohistorical factors to mesolevel processes of socioeconomic marginalization to sociopsychological processes of identity formation. His model further incorporates aspects of existing criminological theory, especially elements of systemic theory (Bursik & Grasmick, 1993; Shaw & McKay, 1942), subculture of violence (Wolfgang & Ferracuti,
1967), and social control (Hirschi, 1969). While Vigil (2002) originally developed his model in the late 1980s with regard to Latino youth in Los Angeles, he has since sought to expand its application to other groups as well.

A visual depiction of the model is included in Figure 1 (Vigil, 2010a). Briefly, Vigil (1988) argues that youth who are marginalized culturally and socioeconomically, who do not experience prosocial controls from their families, schools, or formal authorities, and who turn to and eventually become socialized in the streets, are more likely to join gangs as part of a street identity (Vigil, 1988). In the sections below, the main processes associated with MM that are relevant to the current study will be discussed in turn.

The MM framework begins with the supposition that broad social processes such as immigration and migration lead to the spatial concentration of groups who are often of racial or ethnic minority status (Vigil, 1988, 2002). Vigil (1988, 2002) lays out specific macrolevel forces in the upper left quadrant of his model, including historical elements such as racism and fragmented institutions, as well as structural processes such as immigration and enclave settlement. As most of his ethnographic work detailed the experiences of Latino youth in Los Angeles, he used this case to describe how immigration from Mexico and other Latin American countries led to patterns of social and economic marginalization among youth. According to Vigil, these macrolevel forces are precipitants to the ecological and socioeconomic situation in which many minority populations find themselves. Put simply, newly arrived immigrants or migrants tend to move to and concentrate in the interstitial areas of a city, referring to the spatially and visually segregated areas far from the city center (Shaw & McKay, 1942). These areas tend to be socially disorganized, characterized by low residential stability, high population density, concentrated poverty, a dearth of job availability, and disrupted households (Shaw & McKay, 1942). Youth who grow up in these areas marked by high poverty and
little job relief, along with a lack of personal space in their own home, may come to feel frustrated at
their “underclass” status (Vigil, 1988, 2003) and turn to, and begin to be socialized by, the streets.

Vigil also describes how experiences such as discrimination in school and by authorities, or those
that generally are in conflict with one’s cultural identity, can lead to further marginalization of
youth. He implicitly notes the role of acculturation in gang formation (Vigil, 1983) and postulates
that Latino youth undergo a process of Choloization\(^1\) when they are unable to identify with either
Mexican or Anglo culture (Vigil, 1983, 1988). Choloization can facilitate street socialization and
can help Cholos find a sense of identity by affiliating with the gang subculture. In some of his earlier
work, he examined acculturation among Mexican American adolescents, and how they adapted to
their environments (Vigil, 1979). He conducted in-depth case studies with a total of 12 students from
one urban and one suburban high school. In each school, he selected the two most nativist (Mexican-
oriented), the two most intermediate (Chicano-oriented), and the two most acculturated (Anglo-
oriented) students, and found that the suburban Chicano- and Anglo-oriented students participated in
gang-related activities, despite being more acculturated.

Lacking effective controls from the family unit, the schools, or law enforcement, marginalized
youth spend more time on the streets, and eventually internalize and adopt a street mentality. The
street socialization process, and internalization of the street mentality, is what Vigil (2003) posits
ultimately accompanies gang involvement. His initial concern in explaining Latino gang formation
eventually gave way to his argument that the same mechanisms apply to other groups of racial or
ethnic minority status. That is indeed the theme of his text, *A Rainbow of Gangs* (Vigil, 2002), where
he describes the context and history of Vietnamese, Salvadoran, Mexican, and African American
immigration and migration into Los Angeles, and how it sets the stage for the gang experience.
Through these case studies, Vigil found that many of the same processes and outcomes of margin-
alization identified through his early fieldwork in the barrios applied just as well to the Vietnamese,
Salvadoran, and African American youth he examined in this work. Despite his cross-cultural
sample, however, his model for gang joining was developed in a single place (i.e., Los Angeles),
which begs the question of whether this model does in fact transcend any particular minority group
outside of this city. Vigil (2010a) claims it does in *Gang Redux: A Balanced Anti-gang Strategy*,
noting that the “gang subcultural process unfolds in like manner from place to place—not only in the
United States but in other nations as well” (p. 2). However, as discussed more fully below, most
empirical assessments of this framework to date have been limited to North America and the
dominant ethno-racial minorities therein.

**Previous Tests of the Framework**

Several qualitative studies by other researchers have utilized Vigil’s framework across the United
States and in Canada and have applied it to groups outside of Mexican Americans. Such studies
include examinations of gang formation among Haitian youth in Miami (Page & Marcelin, 2003),
Asian gang onset and persistence (Lee, 2016), former gang members’ reasons for joining gangs and
their lived experience in Tulsa, OK (Cephus-Wilson, 2012), gang-joining reasons from immigrant
youth in Calgary (Van Ngo et al., 2017), and the further marginalization effects of gang injunctions
(Caldwell, 2010). Each of these studies found support for, or utility in using, the MM framework.

In recent years, researchers have also adapted the MM model for quantitative testing, incorpor-
ating variables that correspond to the main constructs in Vigil’s model (Freng & Esbensen, 2007;
Krohn et al., 2011; Ventura Miller et al., 2011). Freng and Esbensen (2007) conducted the first
quantitative test of the MM framework. They examined whether the MM model, as conceptualized,
provided a viable explanation for gang membership and whether it applied globally or uniquely to
different racial/ethnic groups, using multisite survey data from a national evaluation of the Gang
Resistance Education and Training (G.R.E.A.T.) gang prevention program. Their conceptualization
of the MM framework included ecological/economic stressors, social control, and street socialization elements. Their results showed general support for MM in predicting current gang membership, as a majority of the concepts were found to be important predictors. Whether the framework functioned similarly for different ethnic and racial groups depended on if looking at current gang membership (differences in predictors for White and minority youth) or if youth were ever in a gang (more similarity across groups).

In the conclusion of their paper, Freng and Esbensen (2007) discussed the cross-sectional nature of the data as a limitation. Krohn and colleagues (2011) answered the call for longitudinal research with their study of youth participating in the Rochester Youth Development Study. They examined the relationship between economic marginalization, parental and school ties, self-esteem, and risky time with friends on respondents’ ever being in a gang. They found that the framework did not apply consistently across all races, and some predictors (family-process and school-related measures) did not affect gang membership for any race. However, while this study improved upon the cross-sectional design of the previous research, it was limited by ethnic group sample size.

Drake and Melde (2014) examined the ability of Vigil’s framework to predict gang membership using cross-sectional and prospective models. Using longitudinal G.R.E.A.T. data and the same operationalizations of MM model constructs as Freng and Esbensen (2007), they found the results from these types of models differed. Their cross-sectional results were similar to Freng and Esbensen, however, their lagged model revealed educational opportunity as the sole MM-related predictor, leading them to conclude that gang membership predicts the MM factors, not the other way around.

Despite the progress these studies have made in applying the MM framework to a broader audience, it still remains to be seen how far this framework can travel. Vigil’s original focus was on Mexican immigrants in America, and he expanded his analysis to include other marginalized immigrant populations. Other scholars, such as Decker et al. (2009), have examined the role of immigration on gang formation, and their findings suggest that the marginalization that immigrants face when coming to a new country could impact gang formation and membership outside of the United States as well. Our research hopes to understand whether the MM framework, therefore, could be applied around the world, as similar structural conditions and marginalization could exist globally.

**Current Research**

This study builds on prior work that has examined Vigil’s theoretical propositions through quantitative methodologies. We examine measures corresponding to the MM model constructs that prior researchers have investigated, including economic marginalization, social marginalization, neighborhood/social environment, ties to family, ties to school, street socialization, and attitudes toward violence, though we were unable to include measures of ties to law enforcement due to data limitations. Departing from previous tests, we also include some country-level measures to tap into the macrostructural forces described in the MM model. This study leverages an international delinquency survey to help test Vigil’s propositions in part, focusing our regression analyses on the European continent. We limit our test to European countries, as we were necessarily guided by data availability at multiple levels of analysis (i.e., individual level and country level). Additionally, this study responds to the relative lack of macrostructural variables included in previous tests of this framework. This research answers two main questions:

1. Do MM constructs predict gang membership across Europe?
2. Does the inclusion of certain country-level variables help MM’s predictive power?
Method

To answer the research questions, data must be used at both the individual level and the country level. Therefore, the analytic framework used in this research is hierarchical linear modeling (HLM). HLM is useful when studying individuals in context because it adjusts for the nonindependence of observations from the same context, thus providing a more rigorous statistical assessment of these relationships than standard models (Baumer & Arnio, 2012; Luke, 2004; Raudenbush & Bryk, 2002). This research leverages available data from the Second International Self-Reported Delinquency Study (ISRD-2), the World Bank, the United Nations (UN), and the European Social Survey.

Responses to the ISRD-2 are used in this research to provide data at the individual level (Enzmann et al., 2015). The ISRD-2 is a cross-sectional, transnational survey of delinquency and victimization among mostly 12- to 15-year-old students in 30 countries from 2005 to 2007. The sample of countries is mostly a convenience sample comprising European nations but also includes a small number in North America and South America. The sampling design for the ISRD-2 was school-based, and randomly drawn at the city level or national level, with classrooms as the primary sampling unit (Marshall & Enzmann, 2012). Surveys were administered primarily by paper and pencil, but computers were used for data collection in some countries (Aebi, 2009). The target was around 2,100 responses for each country, with a third conducted in a large city, a third in a medium-sized city, and a third in a few small towns (Enzmann et al., 2010). One limitation of the study is that some countries have a sample that is only city-based and is therefore not nationally representative (Enzmann et al., 2010); however, when looking at explanations of offending behavior, the representativeness of the sample is not as important (Marshall & Enzmann, 2012).

The ISRD-2 was an expansion upon the ISRD-1, which was initiated in 1988 and implemented in 13 countries, with a goal of examining different patterns of delinquency and testing the generalizability of multiple theories (Enzmann et al., 2010). The main component of the ISRD-2 is the student questionnaire, which incorporates items and scales about a range of factors thought to be theoretically relevant to juvenile delinquency and victimization; these include questions about socioeconomic status, immigrant status and ethnic minority group, family, school, neighborhood, lifestyle/leisure time, life events, attitudes toward violence, and self-control, in addition to delinquency, victimization, and risky behavior themselves (Marshall & Enzmann, 2012).

We also incorporate theoretically relevant macrolevel constructs in our models using data from the World Bank, the UN, and the 2006 European Social Survey. World Bank estimates are obtained through household survey data for each country and World Bank country departments (World Bank, n.d.). UN (2017) migration data are primarily sourced through national population censuses. The European Social Survey is conducted with a cross-national sample of European countries every 2 years and is intended to measure respondents’ attitudes, beliefs, and behaviors over time (https://www.europeansocialsurvey.org/). The current study uses 2005 estimates from these sources as much as possible, though the 2006 round of the European Social Survey is used.

Dependent Variable

The dependent variable in this study is gang membership. The construction of this variable is based on the Eurogang definition: “any durable street-oriented youth group whose involvement in illegal activity is part of their group identity” (Weerman et al., 2009, p. 20). This binary outcome is based on responses to the following questions in the ISRD-2:

- Do you have a group of friends?
- How long has this group existed? (>3 months)
- Which of the following best describes the age of people in your group? (12–25)
Does this group spend a lot of time together in public places?

Is doing illegal things accepted by your group?

Do people in your group actually do illegal things together?

Respondents had to reply “yes,” or responses had to fall within the correct category, to each of these questions to be considered a gang member; just responding in the affirmative to some or a majority of the questions was not sufficient. The survey also included the question “Do you consider your group of friends to be a gang?” but there is a denial of a gang problem in many parts of the world because their “groups” do not fit the idea of a “gang” in the traditional American sense of the word (Klein, 2007), and therefore, we do not include this self-report measure. The percentage of gang members in each country for the total sample, as identified by this definition, is presented in Figure 2.5

Independent Variables

To test as full of a conceptualization of the MM framework as possible, independent variables are included at the individual and country levels. Data for the descriptive statistics come from all 30 countries, but regression analyses are conducted on a more limited European subsample of 19 countries due to missing country-level data.

Country-level variables. Immigration and migration are important constructs in the MM framework. They represent major processes that situate ethno-racial minority youth in contexts where they can become marginalized. We aim to capture this important part of the MM model in our study by including a measure for country-level migration. We specifically use a measure from the UN Migration Data that measures the percentage of each country’s population who were migrants in 2005 (UN, 2017). Migrants, in this case, refer to individuals who were born in a different country from the one where they currently reside and also includes refugees.

Aggregate measures of discrimination and attitudes toward immigration are constructed from estimates in the 2006 European Social Survey.6 These measures are used to account for potential country-level discrimination and immigration attitudes separate from individual-level measures of
marginalization in the ISRD-2. Aggregate discrimination is constructed as a dichotomous (0/1)
variable that indicates 1 if individual respondents reported being the member of a discriminated
group in their country. A discriminated group could be based on race, nationality, ethnicity, lan-
guage, or religion. The mean of this variable is used to represent the country-level proportion of
respondents who reported being a member of a discriminated group and then log-transformed to
adjust for skewness across countries. Aggregate attitudes toward immigration were also obtained
through the 2006 European Social Survey. Respondents were asked a series of six questions relating
to their attitudes toward immigration and immigrants in their country. They include such statements
as “Immigration is bad or good for the economy,” where respondents could answer anywhere on a
range from 0 (bad for the economy) to 10 (good for the economy). The six immigration items were
combined to create an additive scale that ranged from negative attitudes toward immigration to
positive attitudes toward immigration. The \( \alpha \) coefficient for the six items is \( \alpha > .82 \). Respondents’
scores were then aggregated to create a mean score for each country.

Other macrolevel constructs such as economic inequality and poverty are also included in the
model to control for potential variation in the socioeconomic characteristics across countries.
Economic inequality is measured as the Gini index estimate from the World Bank (n.d.). The
Gini index estimate measures the degree to which a country’s actual income distribution differs
from a perfectly equal income distribution (World Bank, n.d.). The values of the Gini index
estimate range from 0 (or perfectly equal) to 100 (or completely unequal distribution). Poverty
is measured as the percentage of the country’s population who were living on less than US$5.50 a
day (World Bank, n.d.).

Finally, we include aggregate measures of fear of crime and victimization in each country to
control for the variation in crime incidence that likely exists across country contexts. We use
measures from the 2006 European Social Survey to capture reported victimization as well as an
index indicating how worried the respondents are about being victimized. For both measures,
victimization refers to being victimized by a burglary or violent assault. The victimization mea-
sure is a dichotomous (0/1) variable, where 1 indicates the respondent or a member of the
respondent’s household was a victim of a burglary or assault in the previous 5 years. The mean
of this variable was calculated by country to reflect a country-level proportion of respondents who
reported being victimized. The index of how often respondents worry about being victimized is an
additive index of two items asking respondents to indicate how often they worry about being
victimized by violent crime or burglary. The index ranges from “not at all” to “all the time,” and
has an \( \alpha \) coefficient of \( \alpha > .70 \). The mean scores by the country for each of the country-level
indicators are included in Table 1.

**Individual-level variables.** The individual-level independent variables include items related to youth
survey responses surrounding economic marginalization (three items), social marginalization (three
items), neighborhood environment (index of 13 items), ties to parents (three items), ties to school
(eight items), street socialization (four items), and attitudes toward violence (three items; as a proxy
for components of the street subculture and one’s street identity). None of these measures have
previously been used and validated in the exact composition that occurs in this study, with the
exception of the index of neighborhood quality, which was part of a scale developed by Sampson
and colleagues (1997, 1999); Marshall & Enzmann, 2012, p. 55). The other items have been
included in other studies and empirically tested in some format but were selected for our study not
as an entire index of a theoretical construct but as individual items that matched previous
operationalizations of Vigil’s model, as well as those that conceptually made sense to include
based on qualitative work. Our ability to fully explore the MM framework is limited by the
items included in the ISRD-2, which, while including questions related to a variety of theoretical
frameworks, was not created with the testing of this one in mind. Appendix B provides the
conceptualization and operationalization of the individual-level MM constructs, in addition to operationalization in previous research, and justifications for inclusion in the current study. The descriptive frequencies for each variable (and mean, standard error for neighborhood index), for the total survey sample and the limited European subsample, can be found in Table 2. While the regression analyses are only conducted on this European subsample, the descriptive frequencies are shown for the total sample available from the ISRD-2 to provide context for the regression results and illustrate how these might differ from analyses that could provide a more complete global analysis in the future.

Correlations were conducted with both the set of individual-level and country-level variables (not shown). For relations among individual predictors, aside from dummy variables representing categorical variables with more than two groups, none of the bivariate relations exceeded moderate correlation ($r > 0.5$). For country-level predictors, only the variable measuring worry about victimization was moderately correlated with crime victimization ($r = 0.57$), and the country-level discrimination variable ($r = 0.51$).

### Data Analysis

Following the example of Freng and Esbensen (2007), our main analyses are stepwise mixed-effects logistic regression models of responses from 19 European countries, with each additional model incorporating variables from the next theoretical level of the framework. The main difference between our inclusion of theoretical levels and those of Freng and Esbensen’s (2007) is that variables measuring attitudes toward violence, which are similar to some of Freng and Esbenson’s (2007) items in their neutralization index (shown in Appendix B), are included as the final step in the model rather than as part of the formal social control of law enforcement. We feel that this makes more sense in terms of time ordering, as street socialization would be likely to influence the adoption of these attitudes/use of these techniques, not the other way around, and correspond with Vigil’s concept of “street identity.” Because the ISRD-2 data include individuals nested within countries and the potential for significant between-country differences, this study first tests to see whether a multilevel model is appropriate. In order to test this, a null model is run to see whether the

| Measures                      | N   | Mean (SD) | Minimum | Maximum |
|-------------------------------|-----|-----------|---------|---------|
| Total country sample          | 30  | 10.1 (5.8)| BA (1.2)| AW (32.5)|
| % Migrants                    | 29  | 20.7 (2.9)| RU (15.3)| SE (26.1)|
| Attitudes toward immigration  | 19  | 3.9 (0.7)| PL (−5.2)| EE (−2.0)|
| Discrimination (ln)           | 19  | 32.8 (5.8)| SI (24.6)| VE (52.4)|
| Gini coefficient              | 27  | 6.9 (15.7)| CY (0.0)| AM (68.7)|
| Poverty                       | 19  | 0.2 (0.06)| CY (0.1)| FI (0.29)|
| Victimized last 5 years       | 19  | 2.6 (0.4)| NO (2.0)| FR (3.3)|

Note. SD = standard deviation. Country abbreviations noted in Minimum and Maximum columns.
Table 2. Descriptive Statistics for Individual-Level Variables.

| Measure                                      | Total Sample % | European Subsample % |
|----------------------------------------------|----------------|----------------------|
| Demographics                                 |                |                      |
| Gender                                       |                |                      |
| Male                                         | 49.3 IE (52.5) | 49.8 IE (52.5)       |
| Age                                          | 91.5 BA (99.1) | 91.8 SI (98.8)       |
| Economic marginalization                     |                |                      |
| Parental employment                          |                |                      |
| Neither                                      | 3.9 BA (11.2)  | 4.2 FR (10.8)        |
| One                                          | 28.6 AM (48.2) | 27.7 ES (36.4)       |
| Both                                         | 66.5 SI (80.8) | 66.9 SI (80.8)       |
| Own room                                      |                |                      |
| No                                           | 24.4 VE (49.4) | 19.8 RU (39.0)       |
| Traditional family (live with mom & dad)     |                |                      |
| No                                           | 27.2 AN (48.7) | 26.9 EE (38.1)       |
| Social marginalization                       |                |                      |
| Origin of self and friend groupa             |                |                      |
| Nonnative                                    |                |                      |
| Nonnative, friends mostly                   | 9.0 FR (37.8)  | 12.2 FR (37.8)       |
| Native                                       | 77.1 PL (97.7) | 72.8 PL (97.7)       |
| Language spoken at home                     |                |                      |
| Not from country                             |                |                      |
| Yes                                          | 12.2 US (25.6) | 12.1 DK (22.3)       |
| Neighborhood environment                     | n = 65,628     | n = 41,968           |
| Neighborhood index (mean, SE)                | 0.57 BA (.82); | 0.59 (.002) CY (.80); |
|                                              | (.002) Lowest: PL | (.39) Lowest: PL    |
| Ties to family                               |                |                      |
| Get along with parents very well             |                |                      |
| Neither                                      | 20.0 PT (63.4) | 20.9 PT (63.4)       |
| One                                          | 23.5 AN (33.0) | 22.5 RU (31.3)       |
| Both                                         | 55.7 CY (83.3) | 55.7 CY (83.3)       |
| Parents know friends                         |                |                      |
| Sometimes/never                              | 39.3 EE (65.2) | 41.3 EE (65.2)       |
| Always                                       | 55.5 ES (73.7) | 53.0 ES (73.7)       |
| Parental supervision                          |                |                      |
| Sometimes/never                              | 39.3 EE (65.2) | 41.3 EE (65.2)       |
| Always                                       | 59.4 ES (76.2) | 57.3 ES (76.2)       |
| Ties to school                               |                |                      |
| Time spent on homework                       |                |                      |
| Half hour or less                            | 35.0 FI (67.5) | 36.9 FI (67.5)       |
| Hour or more                                 | 63.1 RU (83.1) | 61.5 RU (83.1)       |
| Likes school                                 |                |                      |
| Dislikes                                     | 38.2 SI (68.8) | 41.3 SI (68.8)       |

(continued)
between-country differences are significant. We use the Stata Version 15 command `melogit` (https://www.stata.com/manuals/memelogit.pdf), analyzing individuals (Level-1) nested within countries (Level-2). Including the analysis of variance model to test whether a multilevel model is needed and the full model without the country-level variables to answer our second research question, nine sequential models are analyzed in the following section.

### Results

Our first model was a test to determine whether there are significant differences in gang membership by country to justify a nested model. The likelihood ratio test, for a null hypothesis that

| Measure                          | Total Sample % | Highest % | European Subsample % | Highest % |
|----------------------------------|----------------|-----------|-----------------------|-----------|
| Repeated a grade                 |                |           |                       |           |
| At least once                    | 15.7           | SR (67.7) | 15.0                  | FR (36.8) |
| Never                            | 83.7           | AM (99.2) | 84.3                  | RU (97.9) |
| Truancy                          |                |           |                       |           |
| At least once                    | 27.9           | AM (61.5) | 26.2                  | EE (49.8) |
| Never                            | 71.4           | CZ (94.6) | 73.0                  | BE (84.5) |
| Achievement                      |                |           |                       |           |
| Below average                    | 9.8            | VE (19.6) | 9.3                   | BE (13.7) |
| Average or above                 | 88.8           | SR (94.8) | 89.3                  | CY (93.7) |
| Would miss school if moved       |                |           |                       |           |
| Not true                         | 21.7           | FR (37.4) | 23.7                  | FR (37.4) |
| Teachers notice and say doing well |            |           |                       |           |
| Not true                         | 23.0           | EE (35.0) | 25.0                  | EE (35.0) |
| Likes school                     |                |           |                       |           |
| Not true                         | 27.5           | FR (41.0) | 30.2                  | FR (41.0) |
| Street socialization             |                |           |                       |           |
| Friend group drinks a lot/takes drugs |            |           |                       |           |
| Sometimes +                      | 20.4           | EE (43.2) | 24.1                  | EE (43.2) |
| Never                            | 77.4           | AM (95.4) | 74.0                  | CY (89.7) |
| Friend group vandalizes          |                |           |                       |           |
| Sometimes +                      | 15.2           | IE (22.9) | 15.8                  | IE (22.9) |
| Never                            | 82.9           | AM (89.6) | 82.4                  | PT (88.9) |
| Friend group shoplifts for fun   |                |           |                       |           |
| Sometimes +                      | 8.0            | FR (54.9) | 9.4                   | FR (54.9) |
| Never                            | 89.6           | LT (96.7) | 88.5                  | RU (95.5) |
| Friend group frightens/annoys for fun |        |           |                       |           |
| Sometimes +                      | 25.1           | US (38.5) | 25.2                  | DE (35.0) |
| Never                            | 71.2           | AM (88.2) | 70.9                  | RU (86.6) |
| Attitudes toward violence        |                |           |                       |           |
| Need to use force to gain respect |            |           |                       |           |
| Agree                            | 18.4           | AW (34.9) | 15.6                  | RU (26.9) |
| Somebody attacks, will hit back  |                |           |                       |           |
| Agree                            | 66.1           | AM (82.8) | 63.6                  | NL (82.0) |
| Normal for boys to prove selves with fights |        |           |                       |           |
| Agree                            | 40.4           | AT (59.6) | 39.9                  | AT (59.6) |

*We do not break out the native category by the origin of their friend group, as a relatively small percentage (8%) of the native youth reported having mostly nonnative friends; + indicates or more often than sometimes.*

Table 2. (continued)
Table 3. Logistic Regression Results for MM indicators on Gang Involvement.

| Variables                          | Model 2 |       | Model 3 |       | Model 4 |       | Model 5 |       |
|------------------------------------|---------|-------|---------|-------|---------|-------|---------|-------|
|                                    | Coef.   | SE    | OR      | Coef.   | SE    | OR      | Coef.   | SE    | OR      |
| Constant                           | −2.50*** | 0.11  | 0.08    | −1.38†  | 0.83  | 0.25    | −0.93    | 0.85  | 0.40    |
|                                    | −0.71(0.82) | 0.49  |
| Demographics                       |         |       |         |         |         |         |         |       |
| Male                               | 0.51*** | 0.03  | 1.66    | 0.51*** | 0.03  | 1.66    | 0.52***  | 0.03  | 1.68   |
| Age—16–18                          | 0.52*** | 0.05  | 1.69    | 0.52*** | 0.05  | 1.68    | 0.49***  | 0.05  | 1.64   |
|                                    | 0.44*** | 0.05  | 1.56    |         |       |         |         |       |       |
| Country context                    |         |       |         |         |         |         |         |       |
| Income inequality                  | −0.02(0.03) | 0.98  | −0.01(0.03) | 0.99  | −0.01(0.03) | 0.99   |         |       |
| Poverty                            | 0.04(0.03) | 1.04  | 0.04(0.03) | 1.04  | 0.03(0.03) | 1.03   |         |       |
| Percent migrant                    | 0.02(0.02) | 1.02  | 0.03(0.02) | 1.03  | 0.03(0.02) | 1.03   |         |       |
| Discrimination (ln)               | 0.27(0.21) | 1.32  | 0.25(0.21) | 1.29  | 0.29(0.21) | 1.34   |         |       |
| Crime victimization                | 0.46(2.08) | 1.59  | −0.16(2.12) | 0.85  | 0.46(2.05) | 1.58   |         |       |
| Worry about victimization          | −0.19(0.31) | 0.83  | −0.13(0.32) | 0.88  | −0.33(0.31) | 0.72   |         |       |
| Attitudes toward immigration       | 0.09*(0.04) | 1.10  | 0.09*(0.04) | 1.10  | 0.09*(0.04) | 1.10   |         |       |
| Economic marginalization           |         |       |         |         |         |         |         |       |
| Parental employ—one parent         | −0.02(0.08) | 0.94  | −0.00(0.08) | 0.96  |         |       |         |       |
| Parental employ—both parents       | −0.02(0.08) | 0.98  | 0.03(0.08) | 1.03  |         |       |         |       |
| Own room                           | 0.12** (0.04) | 1.13  | 0.17*** (0.04) | 1.18  |         |       |         |       |
| Live with mom and dad              | −0.41*** (0.04) | 0.66  | −0.28*** (0.04) | 0.75  |         |       |         |       |
| Social marginalization             |         |       |         |         |         |         |         |       |
| Household language of the country  | 0.26*** (0.06) | 1.30  | 0.30*** (0.06) | 1.35  |         |       |         |       |
| Never discriminated against        | −0.32*** (0.05) | 0.73  | −0.21*** (0.05) | 0.81  |         |       |         |       |
| Nonnative, friends with mostly natives | −0.34*** (0.06) | 0.71  | −0.27*** (0.06) | 0.77  |         |       |         |       |
| Native                             | −0.28*** (0.06) | 0.76  | −0.17** (0.06) | 0.84  |         |       |         |       |
| Neighborhood context               |         |       |         |         |         |         |         |       |
| Neighborhood index                 | −0.96*** (0.03) | 0.38  |         |       |         |       |         |       |
| Level 2 variance                   | 0.221 (0.07) | 0.114 (0.04) | 0.119 (0.04) | 0.111 (0.04) |       |         |       |
| N                                  | 42,715  |       | 42,715  |       | 41,615  |       | 40,229  |       |
| BIC                                | 28,235.44 |       | 28,297.95 |       | 27,412.23 |       | 25,697.36 |       |

(continued)
Table 3. (continued)

| Variables                      | Model 6 | Model 7 | Model 8 | Model 9 |
|--------------------------------|---------|---------|---------|---------|
|                                | Coef.   | SE      | OR      | Coef.   | SE      | OR      | Coef.   | SE      | OR      | Coef.   | SE      | OR      | Coef.   | SE      | OR      |
| Constant                       | 0.94    | (0.77)  | 2.56    | 2.41**  | (0.75)  | 11.10   | 2.38**  | (0.76)  | 10.78   | 1.62*** | (0.19)  | 5.07    |
| **Demographics**               |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Male                           | 0.32*** | (0.04)  | 1.37    | 0.07    | (0.04)  | 1.07    | 0.01    | (0.04)  | 1.01    | 0.01    | (0.04)  | 1.01    |
| **Age—16–18**                 | 0.18**  | (0.06)  | 1.19    | 0.06    | (0.07)  | 1.06    | 0.09    | (0.07)  | 1.10    | 0.09    | (0.07)  | 1.10    |
| **Country context**           |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Income inequality              | 0.02    | (0.03)  | 1.02    | 0.02    | (0.03)  | 1.02    | 0.02    | (0.03)  | 1.02    | 0.02    | (0.03)  | 1.02    |
| Poverty                        | 0.01    | (0.03)  | 1.01    | 0.02    | (0.03)  | 1.02    | 0.02    | (0.03)  | 1.02    | 0.02    | (0.03)  | 1.02    |
| Percent migrant                | 0.02    | (0.02)  | 1.02    | 0.02    | (0.02)  | 1.02    | 0.02    | (0.02)  | 1.02    | 0.02    | (0.02)  | 1.02    |
| Discrimination (ln)            | 0.32†   | (0.19)  | 1.38    | 0.22    | (0.18)  | 1.24    | 0.19    | (0.19)  | 1.21    | 0.22    | (0.18)  | 1.22    |
| Crime victimization            | −0.83   | (1.89)  | 0.44    | −0.18   | (1.83)  | 0.84    | −0.25   | (1.87)  | 0.78    | −0.25   | (1.87)  | 0.78    |
| Worry about victimization      | −0.31   | (0.29)  | 0.73    | −0.06   | (0.28)  | 0.94    | 0.05    | (0.29)  | 1.05    | 0.05    | (0.29)  | 1.05    |
| **Attitudes toward immigration**| 0.12**  | (0.04)  | 1.12    | 0.09*   | (0.04)  | 1.10    | 0.08*   | (0.04)  | 1.09    | 0.08*   | (0.04)  | 1.09    |
| **Economic marginalization**   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Parental employ—one parent b   | −0.03   | (0.09)  | 0.97    | −0.10   | (0.11)  | 0.91    | −0.12   | (0.11)  | 0.88    | −0.12   | (0.11)  | 0.89    |
| Parental employ—both parents b | 0.03    | (0.09)  | 1.03    | −0.11   | (0.11)  | 0.90    | −0.12   | (0.11)  | 0.89    | −0.12   | (0.11)  | 0.89    |
| Own room                       | 0.15**  | (0.05)  | 1.16    | 0.07    | (0.06)  | 1.07    | 0.06    | (0.06)  | 1.07    | 0.07    | (0.06)  | 1.07    |
| Live with mom and dad          | −0.13   | (0.04)  | 0.88    | −0.11*  | (0.05)  | 0.89    | −0.12*  | (0.05)  | 0.89    | −0.12*  | (0.05)  | 0.89    |
| **Social marginalization**     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Household language of the country | 0.29*** | (0.07)  | 1.34    | 0.25**  | (0.08)  | 1.28    | 0.27*** | (0.08)  | 1.30    | 0.26*** | (0.08)  | 1.30    |
| Never discriminated against    | −0.15** | (0.05)  | 0.86    | −0.05   | (0.06)  | 0.96    | −0.06   | (0.06)  | 0.95    | −0.06   | (0.06)  | 0.95    |
| Nonnative, friends with mostly natives c | −0.15* | (0.07)  | 0.86    | −0.15†  | (0.08)  | 0.86    | −0.09   | (0.08)  | 0.92    | −0.09   | (0.08)  | 0.91    |
| Native c                       | −0.10   | (0.06)  | 0.91    | −0.22** | (0.07)  | 0.81    | −0.16*  | (0.07)  | 0.86    | −0.16*  | (0.07)  | 0.85    |
| **Neighborhood context**       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Neighborhood index             | −0.60***| (0.04)  | 0.55    | −0.25***| (0.04)  | 0.78    | −0.23***| (0.04)  | 0.79    | −0.23***| (0.04)  | 0.79    |
| **Family ties**                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Get along with one parent very well d | 0.00   | (0.05)  | 1.00    | 0.07    | (0.06)  | 1.07    | 0.06    | (0.06)  | 1.07    | 0.06    | (0.06)  | 1.06    |
| Get along with both very well d | −0.12** | (0.05)  | 0.88    | 0.06    | (0.05)  | 1.06    | 0.05    | (0.05)  | 1.05    | 0.05    | (0.05)  | 1.05    |
| Parents know friends always    | −0.81***| (0.04)  | 0.45    | −0.46***| (0.04)  | 0.63    | −0.43***| (0.05)  | 0.65    | −0.43***| (0.05)  | 0.65    |

(continued)
| Variables                                | Coef.   | SE    | OR    | Coef.   | SE    | OR    | Coef.   | SE    | OR    | Coef.   | SE    | OR    | Coef.   | SE    | OR    |
|------------------------------------------|---------|-------|-------|---------|-------|-------|---------|-------|-------|---------|-------|-------|---------|-------|-------|
| **School ties**                          |         |       |       |         |       |       |         |       |       |         |       |       |         |       |       |
| Spend hour+ on homework                  | -0.48***| (0.04)| 0.62  | -0.24***| (0.04)| 0.79  | -0.22***| (0.04)| 0.80  | -0.22***| (0.04)| 0.80  |
| Like school                              | -0.33***| (0.04)| 0.72  | -0.14** | (0.05)| 0.87  | -0.11* | (0.05)| 0.89  | -0.11* | (0.05)| 0.90  |
| Never repeated a grade                   | -0.17** | (0.05)| 0.84  | -0.03 (0.06)| 0.97 | 0.02 (0.06)| 1.02 | 0.01 (0.06)| 1.01 | 0.01 (0.06)| 1.01 |
| Never truant                            | -0.83***| (0.04)| 0.44  | -0.34***| (0.05)| 0.71  | -0.33***| (0.05)| 0.72  | -0.33***| (0.05)| 0.72  |
| Average+ achievement                     | -0.25***| (0.05)| 0.78  | -0.07 (0.06)| 0.93 | -0.05 (0.06)| 0.95 | -0.05 (0.06)| 0.95 | -0.05 (0.06)| 0.95 |
| Would miss school if moved               | 0.11*  | (0.04)| 1.12  | 0.10*  | (0.05)| 1.11  | 0.11*  | (0.05)| 1.11  | 0.11*  | (0.05)| 1.11  |
| Teachers notices doing well              | -0.12** | (0.04)| 0.89  | -0.18***| (0.05)| 0.83  | -0.19***| (0.05)| 0.83  | -0.19***| (0.05)| 0.83  |
| Like their school                        | -0.09*  | (0.05)| 0.91  | 0.00 (0.05)| 1.00 | 0.01 (0.05)| 1.01 | 0.01 (0.05)| 1.01 | 0.01 (0.05)| 1.01 |
| **Street socialization**                 |         |       |       |         |       |       |         |       |       |         |       |       |         |       |       |
| Friend group never drinks/takes drugs a lot | -1.53***| (0.05)| 0.22  | -1.51***| (0.05)| 0.22  | -1.52***| (0.05)| 0.22  |
| Friend group never shoplifts             | -1.26***| (0.05)| 0.28  | -1.20***| (0.05)| 0.30  | -1.19***| (0.05)| 0.30  |
| Friend group never vandalizes            | -0.68***| (0.06)| 0.51  | -0.65***| (0.06)| 0.52  | -0.64***| (0.06)| 0.53  |
| Friend group never frightens/annoys for fun  | -0.64***| (0.05)| 0.53  | -0.60***| (0.05)| 0.55  | -0.60***| (0.05)| 0.55  |
| **Attitudes toward violence**            |         |       |       |         |       |       |         |       |       |         |       |       |         |       |       |
| Not necessary to use force to gain respect | -0.20***| (0.05)| 0.82  | -0.21***| (0.05)| 0.81  |
| Not fight back if someone attacks        | -0.30***| (0.06)| 0.74  | -0.30***| (0.06)| 0.74  |
| Not normal for boys to prove selves via fights | -0.22***| (0.04)| 0.80  | -0.22***| (0.04)| 0.80  |
| Level 2 variance                         | 0.0925  | (0.03)| 0.0836| (0.03)| 0.0877| (0.03)| 0.166  | (0.06) |
| N                                        | 36,349  | 34,821| 34,296| 34,296  |
| BIC                                      | 22,022.25| 17,348.28| 17,014.55| 16,952.41 |

**Note.** MM = multiple marginality; BIC = Bayesian information criterion. Reference groups: a12–15, bNeither, cNonnative, friends with mostly nonnative, dNeither. Bold+ = p < .10. Bold* = p < .05. Bold** = p < .01. Bold*** = p < .001.
between-country variance is zero, found that this null hypothesis could be rejected ($\chi^2 = 824.66, p < .001$), indicating that a multilevel model was appropriate for these analyses. Furthermore, the between-country intraclass correlation coefficient was .06, indicating that a small, albeit significant, 6% of the variation in gang membership was explained by country-level differences. Subsequent models incorporate control demographic variables and blocks corresponding to the MM framework. The details of the following eight models, incorporating controls and the MM covariates, can be found in Table 3.8

As might be expected, being male and an older teenager (16–18 years old) were associated with higher odds of being gang-involved than being female and 12–15 years old, respectively. These effects remained significant until measures of street socialization and attitudes toward violence (as a proxy for street identity) were introduced into the model, at which point, neither one’s gender nor age independently predicted gang membership.

Country-level variables tapped into multiple constructs; however, there was only one predictor, attitudes toward immigration, which was significantly related to gang membership. In general, when respondents lived in a country where the attitudes toward immigration were more positive, they were more likely to be gang-involved than not, with odds ratios (OR) ranging from 1.09 ($p < .05$) to 1.12 ($p < .01$).

Whether youth reported living with both parents versus some other living situation (OR 0.89, $p < .05$), and whether they reported having their own room versus sharing a room (OR 1.16, $p < .01$), were the only economic marginalization variables that were significantly related to gang involvement, though this latter effect washed out once the predictors measuring street socialization and attitudes toward violence were entered into the model. All predictors associated with individual-level social marginalization were significantly related to gang membership, though only the variable measuring household language spoken remained significant in all models. When considering the country context in addition to all other MM predictors included in this study, youth who reported speaking the native language of their current country at home were 30% more likely than youth who reported speaking another language at home in being gang-involved (OR 1.31, $p < .001$). This variable was also the only social marginalization variable that went in the opposite direction than was predicted. For instance, respondents reporting never having been discriminated against were less likely than their counterparts to be gang involved (OR 0.86, $p < .01$), and nonnative youth whose friends were mostly native were also less likely than nonnative youth with mostly nonnative friends at being gang-involved, though these effects disappeared with the introduction of the attitudes toward violence measures.

The impact of neighborhood context on gang involvement was significant and negative for all models, though this effect decreased as more of the theoretical variables were entered into the model (full model OR 0.79, $p < .001$). Ties to parents, particularly whether parents always knew a respondent’s friends when they went out, were strong predictors of gang involvement (full model OR 0.65, $p < .001$). There were multiple school-related variables that were significant predictors of gang membership. Those strongest predictors were never being truant (OR 0.44, $p < .001$), the amount of time spent on homework being an hour or more (OR 0.62, $p < .001$), and teachers noticing when respondents do well and saying so (OR 0.89, $p < .01$). The latter variable increased in predictive strength once street socialization was included in the model (full model OR 0.83, $p < .001$). All street socialization variables were significant in the final models, controlling for all other predictors. Particularly, strong predictors include if the respondent’s friend group did not use substances or ever shoplift items versus engaging in this behavior at least sometimes. Similarly, the attitudes toward violence variables were all significant predictors of gang membership, with the measure indicating the respondent would fight back if attacked being the largest in magnitude.

To assess for potential issues related to multicollinearity, variance inflation factors (VIFs) were calculated after running the fully specified model. All VIFs were less than 3, with the exception of two dummy variables representing two categories of the parental work status
variable, for which the VIFs were 5.7 and 5.9, suggesting multicollinearity is not a major issue in these models.

**Model Fit**

The Level 2 variance of Model 1 was 0.2251, and this drops to 0.0877 by Model 8, a reduction of 61%. The Bayesian information criterion (BIC) values of Models 1 through 8 suggest better fit with the inclusion of each set of variables, with the initial BIC in Model 1 being 28,748.21 and the BIC in Model 8 being 17,014.55, a drop of over 10,000. Model 9 shows the trade-offs of including the country-level variables. While the BIC of Model 9 dropped to 16,952.41 when the country-level variables were excluded, indicating a better model fit, the Level 2 variance increased to 0.166. So while the model might be slightly better specified without them, a model including the country-level predictors can account for almost 50% more of the Level 2 variation than one that includes only individual-level predictors.

**Discussion**

The current research found partial support for the influence of country context on individual-level gang membership and yielded some seemingly counterintuitive results. For instance, the economic context of countries did not matter much in predicting individual gang membership, at least in the current models. While we would intuit that countries with higher income inequality would facilitate some of the strain that marginalized youth feel, it might be that state-level context does not matter so much for individual-level strains compared to economic strains more locally felt (i.e., city or community level). Additionally, there may be a moderation effect between economic disadvantage at the structural level and ethno-racial heterogeneity. For instance, Pyrooz et al. (2010) found that, at the state level, when racial heterogeneity is high, economic disadvantage matters more for gang formation than when heterogeneity is low.

In addition, the direction of the relationship between country-level attitudes toward immigration and individual-level gang membership was surprising. Vigil (1988) does not discuss attitudes toward immigration in his model specifically, but he references the influence of historical racism and discrimination on social marginalization. Following this thread, we expected that youth living in countries where attitudes toward immigration were more negative than positive would be more likely to be gang-involved yet we found the opposite to be true. One reason could potentially be due to the implicit need for sufficient time to experience marginalization. Countries that have a historic or older migrant population relative to newer migrant populations (e.g., such as that brought on by refugees) may hold more positive attitudes toward immigration. If so, we should expect that migrant populations that have been in residence for longer would be more entrenched in the society and thus have more time to experience the economic and social marginalization processes that Vigil discusses. Alternatively, measures of the migrant population’s race or skin color might explain the positive effect of immigration attitudes on gang membership: for instance, if positive attitudes toward immigrants are specific to those migrating from certain regions such as Western Europe versus Middle East/North Africa. The current study may be missing key predictors at the country level related to race, skin color, or ethno-racial heterogeneity that should be included in future iterations of this model.

Consistent with Freng and Esbensen’s (2007) findings, some measures of economic marginalization, social marginalization, parental and school ties, street socialization, and attitudes toward violence/neutralizations were found to be significantly related to gang membership. Our finding about the positive impact of an alternative language spoken at home was particularly interesting because it is consistent with what Vigil has suggested in regard to culture as a protective factor for gang membership (Vigil, 1979) and results from prior studies (Krohn et al., 2011) yet it contradicts
findings from other scholars that the more acculturated a youth is (including more Anglo-oriented), the less likely they are to report gang involvement (Ventura Miller et al., 2011). Our finding hearkens back to Vigil’s concepts of Choloization in the context of Mexican American youth, where he found that individuals who were more Anglicized or more Chicano (i.e., somewhere “between” Mexican and American culture) were more likely to be gang-involved than the nativist Mexican youth (Vigil, 1979).

The importance of neighborhood context in these models is consistent with what some scholars have found in regard to collective monitoring on gang members’ delinquency and substance use (Quinn et al., 2018). The findings from the current research shed light on the importance of community contextual factors, and may even point toward the relevance of other controls (Bursik & Grasmick, 1993) in predicting gang involvement, as opposed to just those exerted by family, school, and law enforcement as specified in Vigil’s model.

While mostly in line with Freng and Esbensen’s (2007) findings, some of our social control findings contrasted those of previous tests of MM. We found that parental monitoring (in the form of parents knowing who their children are out with) was a significant predictor, which contradicts Krohn and colleagues (2011), who did not find any significance of parental monitoring in their longitudinal test of the MM framework. For ties to school, we found that variables related to school commitment and school attachment were significantly related to gang membership across all the models, while those more related to achievement dropped out once street socialization was taken into account. The significance of school commitment is in line with Freng and Esbensen’s (2007) findings, but nonsignificance was found in other studies (Drake & Melde, 2014; Krohn et al., 2011).

All of the street socialization and attitudes toward violence variables included in this analysis were highly significant predictors in the models. However, the issue with these variables in cross-sectional data is that we cannot account for time ordering. We know that these friend-group behaviors and attitudes are significantly related to gang membership, but we cannot prove that they came before entrance into a gang. This issue was highlighted by Drake and Melde (2014) who found that their street socialization variable of being in the presence of alcohol or drugs with friends, along with variables measuring neutralizations, was significant in a cross-sectional model, but not in a time-lagged model.

The analyses presented here find some support for Vigil’s model, and some evidence of external validity. Gang research has long acknowledged the role of marginalization in predicting gang membership, and we can see this is no less important in non-U.S. contexts. Our model results also speak to the relative importance of individual-level factors in explaining why some youth become gang involved while others do not. At the same time, it is evident that accounting for a broader context is also important in explaining variations in gang joining. Although only one country-level predictor included in this model was significant, their inclusion as a whole helped explain 50% more of the variation in gang membership between countries than just individual-level predictors alone.

Perhaps more importantly from a policy perspective is the effect that neighborhoods had on gang involvement in our models. Youths’ own perceptions of neighborhood context was an important predictor of their belonging to a gang, even in light of their relationship with their family and school. While Vigil (2010a) has often emphasized better equipping schools and parents as socializing institutions to keep youth from gang life, our models suggest further attention should be paid to strengthening communities in general as socializing institutions. The notable effect of culture as indicated by language spoken at home further suggests policies geared toward maintaining cultural ties for minority youth. Supplementing communities with culture-specific organizations or increasing the cultural competency of public schools (Vigil, 2010a) may serve as protective forces against youth gang involvement.
Limitations

There were several limitations to the current study that require mention, primarily related to our use of secondary cross-sectional data. First, we were constrained to the specific wording and questions asked in the original survey. The current study was unable to measure youth ties to law enforcement. Thus, this source of social control was not accounted for in our models. Even for those variables we were able to include, these measures are imperfect and do not capture the full essence of the MM framework’s qualitative components. Items were taken from scales meant to test other criminological theories and constructs, and their wording reflects that. However, these measures allowed exploration of this complex framework of gang membership incorporating macro- and microlevel factors, even if in a more simplistic manner than desired.

Next, as mentioned above, due to the cross-sectional nature of these data, we are unable to establish time ordering in our models. It may be the case that youth who are gang-involved are more inclined to report poor family ties, engaging in deviant peer activities, and so on. This concern is well supported by Drake and Melde’s (2014) study of MM and gang formation, in which they found different results depending on whether their model was a cross-sectional versus a time-lagged test. The dynamic nature of Vigil’s (1988, 2002) framework may lend itself better to a longitudinal assessment.

Finally, we found that country-level variation was important in predicting individual-level gang membership; however, future research should incorporate different or additional country-level predictors than were possible with the current models. In particular, there may be more suitable measures of poverty that can be incorporated in future analyses, such as the at risk of poverty and social exclusion (AROPE) measure that is available through the European Union Survey of Income and Living Conditions (Eurostat, n.d.). Unfortunately, the AROPE measure was not available for all countries in our sample, and thus, we were constrained to use the most inclusive, albeit imperfect measure of national poverty, but sensitivity analyses conducted with a more limited sample for which AROPE estimates were available showed that poverty, as measured more appropriately, may be an important country-level predictor of gang membership in this framework. Importantly, incorporating measures of race and ethnicity as well as ethno-racial heterogeneity would be valuable for future specifications of this model, both at the country level and individual level. While Pyrooz and colleagues (2010) point to the importance of structural ethno-racial heterogeneity, other findings that MM predictors vary across ethno-racial group in the United States might apply similarly in other countries as well. Despite these limitations, however, this study provides value in being the most complete quantitative assessment of Vigil’s (1988) MM framework to date and is able to provide partial support for some of the components outlined in the MM model.

Conclusion

The veracity of Vigil’s (2002) model of minority youth gang involvement is important to assess because of the large share of street gangs who are minority youth (Howell, 2015). Quantitatively testing key variables related to marginalization, especially in a diverse sample of nations and youth, can tell us whether we are hitting the mark with regard to the processes by which many minority youth join gangs. Overall, this study found support for many factors involved in Vigil’s MM framework, although the study is limited by cross-sectional data in terms of testing the exact dynamics proposed. Across 19 European countries, elements of the MM framework were found to significantly predict gang membership, as defined by the Eurogang consensus group. Our findings also indicate that including country-level predictors is important in understanding gang membership across different country contexts, although future research should attempt to incorporate different
measures such as ethno-racial heterogeneity. Future research should also look at how the framework functions within each country and whether it fits similarly well. Although longitudinal research is unlikely to be accomplished at the scale of this research, longitudinal assessment in a context outside the United States would be helpful in understanding whether the dynamics Vigil proposes translate across national contexts.

**Appendix A.**

**Table A1. Conceptualization of Vigil’s Multiple Marginality.**

| MM Construct                        | Measures Used in Prior Tests of MM Model                                                                 |
|-------------------------------------|----------------------------------------------------------------------------------------------------------|
| Economic marginalization            | Parental/caretaker education; Employment; Household structure; Age mother first gave birth; Financial stress; Per capita family income |
| Social marginalization              | Social isolation; Ethnic identity; Perceived racial discrimination; Ethnic marginalization; Discrimination motivated victimization; Speak Spanish at home; Language spoken; Social assimilation |
| Neighborhood and social environment| Collective monitoring; Neighborhood disorder; Neighborhood drug availability; Neighborhood attachment; Social assimilation |
| Ties to family                      | Parental monitoring; Parental supervision; Parental attachment; Positive parenting; Family communication; Living with parents/guardians; Parental investment; Parent/guardian drug use; Family gang involvement; Parent/guardian incarceration |
| Ties to school                      | School enrollment; School involvement; School commitment; Attachment to teacher; School support; School connectedness; School satisfaction; Academic achievement; Low school adjustment; Trouble at school; Limited educational opportunity; Educational expectations |
| Ties to law enforcement Neutralization | Views on law enforcement; Attitude toward police; Negative police interaction Techniques of neutralization |
| Street socialization                | Spend time with friends with drugs and alcohol; Risky time with friends                                     |
Table B1. Conceptualization, Operationalization, and Justification of Individual-Level Measures (Including Similar Prior Measures and Their Tests).

| Construct                     | Conceptualization                                                                 | Operationalization                                                                 | Prior Measures                                                                 | Prior Test s | Justification for Inclusion                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Economic marginalization      | Employment                                                                       | Does your father (or the man you live with) have a job?                           | Parent(s) employment                                                          | Cephus-Wilson (2012) | MM framework emphasizes the role of economic disadvantage, parental employment included as a proxy for socioeconomic status, used as part of the socioeconomic level of respondents in prior study. |
|                               |                                    | Does your mother (or the woman you live with) have a paid job?                    |                                                                               |              |                                                                                                                                                             |
| Household structure           | Are you living with your own mother and father?                                   | From single-parent household                                                      | Drake & Melde (2014)                                                          | Drake & Melde (2014) | Household structure used as a proxy for family income in prior study.                                                                                     |
| Crowded housing               | Do you have a room of your own?                                                   |                                                                                    |                                                                              |              | Vigil (2003) suggests crowded housing as one factor that displays economic marginalization.                                                                  |
| Social marginalization        | Discrimination                                                                    | Have people ever treated you badly because of your religion or the language you speak, or the color of your skin? | 12 Items asking how often they have perceived discrimination due to their culture (e.g., someone yelled a racial slur at you—other items not mentioned in the text) | Hautala et al. (2016) | Vigil (1988) suggests that discrimination is related to social marginalization.                                                                               |
|                               |                                    |                                                                                    | During the past 12 months, how many times on school property were you harassed or bullied for... | Estrada et al (2013) |                                                                                                                                                    |
|                               |                                    |                                                                                    | ...your race, ethnicity, or national origin                                       |              |                                                                                                                                                             |
|                               |                                    |                                                                                    | ...your religion                                                                |              |                                                                                                                                                             |
|                               |                                    |                                                                                    | Your close friends are... (all Mexican, more Mexican than White (or others), about half Mexican and half White (or others), more White (or others), more Mexican (or others) than White (or others)) | Ventura Miller et al. (2011) | Previously used to capture an element of acculturation (language), which has been examined by Vigil (1979, 1983) as an aspect of social marginalization.                                |
| Language                      | What language do you most often speak with the persons you live with?              | Whether primary caregiver spoke Spanish at home                                   | Krohn et al. (2011)                                                          | Krohn et al. (2011) |                                                                                                                                                    |
|                               |                                    | What languages do you usually speak at home?                                     | Ventura Miller et al. (2011)                                                  | Ventura Miller et al. (2011) | Previously used to capture an element of acculturation (social assimilation), which has been examined by Vigil (1979, 1983) as part of social marginalization; the origin of the child and their parents helps understand the level of acculturation necessary. |
| Social assimilation           | Were you born in this country?                                                    |                                                                                    | Ventura Miller et al. (2011)                                                  | Ventura Miller et al. (2011) |                                                                                                                                                    |
|                               | Was your mother born in this country?                                             |                                                                                    |                                                                              |              |                                                                                                                                                    |
|                               | Was your father born in this country?                                             |                                                                                    |                                                                              |              |                                                                                                                                                    |
|                               | How many of your friends have parents of a foreign origin?                        |                                                                                    |                                                                              |              |                                                                                                                                                    |

(continued)
Table B1. (continued)

| Construct                              | Conceptualization | Operationalization | Prior Measures | Prior Test * | Justification for Inclusion |
|----------------------------------------|-------------------|--------------------|----------------|--------------|----------------------------|
| Neighborhood and social environment    | Collective monitoring | My neighbors notice when I am misbehaving and let me know | How likely is it that adults in your neighborhood would intervene if children or teenagers were hanging out in the street? | Quinn et al. (2018) | Characteristics of neighborhoods are not explicit as a factor in the MM framework but implicit through the inclusion of macrostructural forces that lead to enclave settlements (Vigil, 2010a), and the idea that economic marginalization may concentrate in neighborhoods contributing to an “underclass” (Vigil, 2003); we include the entire scale on neighborhood quality, consisting of items related to neighborhood disorder, attachment, and cohesiveness (Marshall & Enzmann, 2012), to get a comprehensive perspective on neighborhood influence, as it had been excluded from most prior quantitative tests and the qualities of the neighborhoods most important to the MM framework were not fully specified by Vigil. |
| Neighborhood crime/disorder            | There is a lot of drug selling | How often does drug dealing occur in your neighborhood | Has anyone in your neighborhood offered you . . . (6 drug options)? | Quinn et al. (2018) | Ventura Miller et al. (2011) |
| Neighborhood attachment                | If I had to move, I would miss the neighborhood | I like my neighborhood | | | |
| Neighborhood cohesiveness              | There is a lot of space for children to play | People around here are willing to help their neighbors | People in this neighborhood generally don’t get along with each other | | |
| Ties to family                         | Parental monitoring | Do your parents (or the adults you live with) usually know who you are with when you go out? | If their parents know who they are with if they are not at home. | Parental monitoring is directly related to family-level social control and variation potentially related to levels of economic marginalization; similar items were used in prior studies to understand the extent of parental monitoring of activities day and night. | |
|                                        | Parental attachment | How do you usually get along with the man you live with (father, stepfather . . .)? | I can talk to my mother/father | Drake & Melde (2014); Freng & Esbensen (2007) | A primary source of weakened ties to the family is through parental attachment; prior studies have used a similar item within an index of parental attachment measures. |
| Construct          | Conceptualization                     | Operationalization                                                                 | Prior Measures                         | Prior Test                          | Justification for Inclusion                                                                 |
|--------------------|---------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------|
| Ties to school     | School commitment                      | Do you usually like school? Outside school how much time do you spend on an average school day on each of these activities?: Doing homework | I like school I usually finish my homework | Drake & Melde (2014); Freng & Esbensen (2007) | Justification for Inclusion                                                                 |
| School satisfaction| I like my school                      | I am satisfied with my school (Never, sometimes, most of the time)                   | Ventura Mille et al. (2011)            |                                     | A measure of school satisfaction is also included as a component of the school bond, which needs to be weakened in order for street socialization to occur. |
| School support     | Teachers do notice when I am doing well and let me know | At my school, there is a teacher or some other adult who tells me when I do a good job | Estrada et al. (2013)                  |                                     | Both of these items related to school support and connectedness provide a proxy for school attachment, another component of the school bond. |
| School connectedness | I feel close to people at this school I am happy to be at this school I feel like I am a part of this school | If I had to move, I would miss my school | Estrada et al. (2013)                  |                                     |                                                                                             |
| Academic achievement | How well do you do in school compared to other students in your class? Have you ever been held back, did you ever have to repeat a grade? | Self-reported average letter grade at Wave 4 (age 15.5) | Krohn et al. (2011)                   |                                     | Prior research has included academic achievement and other school-related measures in their analyses of gang involvement, as Vigil (1999) suggests these school-related measures should be predictive of gang involvement (though his focus was on Hispanic individuals in particular). Academic achievement may also be an indicator of commitment to conventional society and has been demonstrated to be a protective factor against antisocial behavior (Losel, 2001). |
| Trouble at school  | Whether they have gotten in trouble in school |                                      | Hautala et al. (2016)                  |                                     | Vigil (1999) has linked gang membership with trouble at school, and truancy could be one way in which school social control mechanisms are “all but absent” (Vigil, 2003, p. 235). |

(continued)
| Construct                  | Conceptualization                                                                 | Operationalization                                                                 | Prior Measures                                                                 | Prior Test                          | Justification for Inclusion                                                                 |
|----------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------|
| Street socialization       | Spend time with friends with drugs and alcohol                                   | When you hang out with your friends, we usually ... drink a lot of beer/alcohol or take drugs | Do youth spend time with friends in the presence of drugs and alcohol             | Drake & Melde (2014); Freng & Esbensen (2007) | Street socialization is the process by which youth are molded “to conform to the ways of the street” and usually occurs within the context of peers (Vigil, 2002, p. 10; Vigil, 2004). Items are included that relate to deviant activities with peers, as have been used in prior studies. |
| Risky time with friends    |                                                                                    |                                                                                     | The amount of time spent with the participant’s 3 riskiest friends                | Krohn et al. (2011)                  |                                                                                             |
| Other antisocial behavior with friends | ... smash or vandalize things just for fun  
... shoplift just for fun  
... frighten and annoy people around us just for fun |                                                                                     |                                                                                   |                                     |                                                                                             |
| Street subculture/identity | Attitudes toward violence/ Techniques of neutralization                          | If somebody attacks me, I will hit him/her back                                       | Get into a physical fight with someone if they hit you first                     | Drake & Melde (2014); Freng & Esbensen (2007) | Vigil (2003) stated that “street socialization leads to a street subculture, and this is where and how the subculture of violence is learned and practiced. ... This concept ... essentially maintains that a violent way of life dominates the streets” (p. 235). Therefore, attitudes toward violence are included in the model as proxies for components of the street subculture of violence and street identity that forms through street socialization. Those attitudes toward violence that aligned with values and norms that guide gang members’ thinking, such as protection and respect (Vigil, 2010b) are included. Two of these are also similar to items in prior research, categorized as techniques of neutralization. |
|                            |                                                                                    | It is completely normal that boys want to prove themselves in physical fights with others | Get into a physical fight with someone if you have to stand up for your rights   |                                     |                                                                                             |
|                            |                                                                                    | One needs to make use of force to be respected                                       |                                                                                   |                                     |                                                                                             |

*Studies in boldface are direct full or partial tests of the framework; others utilize the framework in some way but are not directly testing it.*

This operationalization is closely related to deviant peer relationships, a focus of much of the past social learning literature including that which contributed to the construction of the International Self-Reported Delinquency Study-2, and this is a limitation to the testing of the “street” aspect of the socialization process using secondary data; however, Vigil (2010b) notes that “It is also true that most of the time spent by gang members is in the usual cavorting activities found in most adolescent and youth groups” so these characteristics might be especially hard to tease out quantitatively. According to Vigil, only violence against others and against themselves, taught to youth by their peers, “separate gangs from other adolescent peer networks” (2003; 2010b, p. 159) and attitudes toward the former are incorporated in the following section.
Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. According to Vigil (1999): “‘Cholo’ is derived from the Spanish solo (alone) and has been used to describe a sense of racial and cultural marginality experienced by natives during the early Spanish colonial period. Today, it is a label depicting a street lifestyle, particularly among gang members who are marginalized from mainstream society” (p. 271). Choloization refers to a process by which marginalized individuals fail to fully assimilate to Anglo culture, adopting instead a cholo identity and lifestyle (Lopez & Brummett, 2003; Vigil, 1988).

2. Their models excluded macrohistorical and macrostructural forces, and the authors rationalized this by saying Vigil (2002) himself said it would be difficult to impact these forces through intervention.

3. As will be shown in Table 2, although 12- to 15-year-olds may have been the target sample, 16- to 18-year-olds ended up comprising about 8% of the total sample.

4. Previous studies did not include this question, and while they do not explicitly explain why, we believe it is because it was not asked in France (Gatti et al., 2011; Haymoz et al., 2014). The authors felt it was an important aspect of the youth gang definition, so we included this question for all countries except for France.

5. Country acronyms are as follows: AM = Armenia; AN = NL Antilles; *AT = Austria; AW = Aruba; BA = Bosnia and Herzegovina; *BE = Belgium; *CH = Switzerland; *CY = Cyprus; CZ = Czech Republic; *DE = Germany; *DK = Denmark; *EE = Estonia; *ES = Spain; *IE = Ireland; IS = Iceland; IT = Italy; *FI = Finland; *FR = France; *HU = Hungary; LT = Lithuania; *NL = Netherlands; *NO = Norway; *PL = Poland; *PT = Portugal; *RU = Russia; *SE = Sweden; *SI = Slovenia; SR = Suriname; US = United States; VE = Venezuela. * indicates the country was included in the final sample for analyses (N = 19).

6. Note that in the current study, data from the European Social Survey were used solely to construct aggregate predictor variables as measures of country context. All individual-level variables including the gang membership outcome variable were obtained from the ISRD-2.

7. These tables are available upon request.

8. The parental supervision variable was removed from the final models because it was perfectly predicted by the responses to parents knowing friends.

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