Gender norms, social capital and the reproduction of domestic violence in urban contexts of segregation and poverty

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Abstract

Going beyond descriptive analysis on economic segregation, this paper aims to answer the question of what social processes are activated in such contexts and how they impact on development issues. Specifically this paper uses an original dataset for the analysis of the impact of economic segregation on domestic violence exploring the mediating role of social capital and gender norms. We found that segregation has a positive impact on gender norms and this in turn increases the likelihood of domestic violence. Also in contexts of segregation, a greater intensity of social ties are developed and these networks in turn help reduce violence. In those segregated context then promoting social capital is a powerful mechanism for generating trust between women and helping them to improve their situation related to violence.
Introduction

The concept of segregation is one of the most used by the research that aims to analyze inequality in urban contexts. Although, as Sabatini (2003) points out, residential segregation must not be considered solely as a problem in itself\(^1\), several studies have established a negative relationship with different dimensions of the life of urban youngsters.

Thus, the literature shows an impact of residential segregation on anomic and delinquent behavior, adolescent sexuality and early pregnancy (Crane 1991; Duncan and Raudenbush 1999; Sampson, Morenoff and Gannon-Rowely 2002). In addition, significant minor effects of a segregated and poor context on educational paths have been shown (Duncan, Connell and Klebanov 1997; Jencks and Mayer 1990; Leventhal and Brooks-Gunn 2000; Ludwig, Ladd and Duncan 2001). For Latin America, Kastman (2008) has also noted the relationship between the level of homogeneity in the social composition of poor neighborhoods and the educational achievement and behavior of youngsters. The author concludes, among other things, that children from low-income households achieve better academic results when they live in neighborhoods with heterogeneous social composition than when they live in socially homogeneous neighborhoods. For Roland Bénabou (1993), in dissociating skilled workers from the unskilled ones, urban segregation in turn deters the investment in the human capital of the unskilled and contributes ultimately to excluding them from employment. David Cutler and Edward Glaeser (1997) empirically demonstrate...
the combined effects of the intensity of segregation of black people in American cities on education, employment and frequency of single parenthood.

Peru has been no exception to the development of segregation studies (Gonzales de Olarte 1999; Pereyra 2006). In our country, there is large-scale segregation, as Sabatini (2003) and Pereyra (2006) point out, which includes the poor population on the outskirts of the city, away from urban centers and, to a lesser extent, in the deteriorated historical center (Pereyra, 2006). According to Sabatini (2003), this pattern of peripheral segregation of a large portion of the poor population of Lima is part of an urban expansion model, characteristic of contemporary Latin American cities.

The studies on residential segregation in Lima identify the existence of “social fragmentation” due to the lack of connection between certain areas of the city and the information circuits, capital and institutions (Chion 2002; Mesclier et al. 2001; Ramirez-Corzo 2006). According to these authors, there are profound territorial disparities in private services—such as shops, banks and companies in general—and public services—schools, health posts and administrative offices—because of their greater density in central parts of the city. Physical distance and poor connectivity limit the access of families living in peripheral segregated areas. An extreme case is that of shanty towns located in the hills, especially those that surround the city of Lima in the eastern suburbs. Thus, according to Peters and Skop (2007), segregation in Metropolitan Lima is located in “pockets” of disparities across seemingly homogeneous areas (areas that may appear to be homogeneously poor or homogeneously rich). It is fragmented segregation, scattered locally with different socioeconomic groups living near each other. In this way, Peters and Skop (2007) point out, the neighborhoods that were traditionally considered
homogeneously of low socioeconomic status, in fact show somewhat like islands of improvement, which means that segregation is highly differentiated at micro-levels (even from block to block) and especially in neighborhoods of low socioeconomic status. Because of this process, finer measurements of residential segregation (using census microdata) indicate that between 1993 and 2007 there has been a reduction in economic segregation and in occupational segregation (Herrera et al. 2015).

Despite those studies, in Peru there is no empirical research analyzing the association between this type of residential segregation and social development issues. Hence, we are particularly interested in studying how contexts of residential economic segregation influence violence against women and the mediating role that play on that association social capital and gender norms.

**The problem of domestic violence**

Violence against women represents one of the most systematic and prevalent human rights abuses in the world (UN 2007). This phenomenon is found in every country and also transcends differences in culture, class, education, income, ethnicity and age (UNICEF 2000). It can be defined as "any act of gender-based violence that results in, or is likely to result in physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." (UN 1993). In Peru, there is currently a high rate of women experiencing violence by their intimate partners. According to the 2012 Demographic and Health Survey (DHS), 45.4% of Peruvian women have been subjected at least once to some type of violence—psychological, physical or sexual—by their spouses or intimate partners. These percentages
vary according to the type of violence. On the one hand, 31.1% of women in Peru have been subjected at least once to psychological violence by their partners. This figure rises when it comes to physical violence (37.6%); and finally, this figure drops for sexual violence, where 9.2% of Peruvian women have been victims, at least once, of this type of violence by their partners. These figures are a warning sign, as they are higher when compared to the results found in other countries in the region.

Previous research conducted in Peru has identified that there is an intergenerational transmission of violence from mothers to daughters (Benavides and Leon 2013; Mora 2013). It was found that those women who experienced violence as children are more likely to be subjected to violence by their spouses or intimate partners; and secondly, those women whose mothers were subjected to domestic violence as children are more likely to be subjected to violence by their spouses or partners. On the other hand it has been found that those women who live in a house where the spouse or partner is controlling her behavior are more likely to be subjected to psychological and/or physical violence (Benavides, Leon and Ponce de Leon 2015).

Despite efforts to analyze the magnitude and characteristics of this phenomenon, there is a lack of studies focused on the contextual determinants of violence against women in contexts of poverty. This is a significant problem inasmuch as the poverty rates in Metropolitan Lima show that 18.3% of the population lives in poverty or extreme poverty, and some districts show higher rates such as San Juan de Lurigancho and Carabayllo, with 28.5% and 27.8%, respectively (INEI 2009). There are much less studies analyzing the impact of social factors, such as segregation, on violence in contexts of poverty.
Analytical Framework: gender norms, social capital and domestic violence in contexts of segregation

Segregation and gender norms

In areas of segregation (where there is social isolation but at the same time greater intensity of ties) general norms could be replaced by social norms in many cases opposed to the former. The latter in turn can be sustained by a series of parallel institutions that allow their cultural and economic reproduction (Wacquant 2008), so they become more and more isolated from the standards of conduct and other “normal” patterns that prevail in cities (Wilson 1987). For instance, Sampson and Laub (1995) analyze the behavior of youngsters in poor segregated areas and conclude that the neighborhood environment influences their behavior based on particular principles and values. This occurs through a structure of interpersonal relationships that may or may not be in line with the principles and values of society. The influence of the residential environment operates, among others, through the group of peers and neighbors in relation to basic social institutions such as family, work and education (Sampson, Morenoff and Gannon-Rowley 2002).

It is true that the fragmentation of Lima has not led to completely isolated areas, insofar as there are ways of becoming linked to neighborhoods within and among districts. Therefore, according to Avellaneda (2008), slums in Lima are indeed linked, at least economically, to the rest of the city. This is unlike the ghettos that, according to Wacquant, maintain a parallel, autonomous institutional system (economic, political, and even cultural). In this scenario, it is not that there are necessarily parallel institutions, rather they are spaces where
the withdrawal of social protection from the State—and all the ideas, rights and rules promoted by it—is evident. As Leventhal et al. (2009) points out, there is a lack of State institutional resources, such as employment opportunities. For instance, in the Peruvian urban context, Benavides et al. (2015a) have documented how, in segregated spaces, the social and geographical distance of protection institutions limits the possibility of being linked to the narratives of rights and access to justice.

Thus the likelihood of disseminating more easily cultural norms that tolerate and support violence as a form of addressing problems and punishment is greater (Barker 2010; Koenig et al. 2006; Morrison, Raju and Sinha 2007). Such contextual dynamics could also encourage the development of social norms that promote, for instance, men’s control over women. This can also be supported by the existence of sexist prejudices in the police and judicial institutions in these areas, resulting in the authorities intervening only in cases in which women are willing to report and leaning towards conditional law enforcement (Menéndez et al. 2013).

**Segregation and social capital**

In these social spaces of segregation the ties among people predominate. Segregation towards them produces, as Wacquant (2008) states, “the association and construction of the community within the restricted sphere of relationships that it creates. The isolation imposed from the outside leads to the intensification of social contact and sharing culture within.” (Wacquant 2008, 126-127). In short, it can be an integrating and protective instrument as the author points out. This creates some group identity while allowing some cultural autonomy and encourages the creation of dense networks of collective solidarity.
(Portes 1989). In these contexts, this social capital is built on informal networks rather than on involvement in civic activities (Li et al. 2005).

This positive thesis of social capital has been previously used by studies in Lima, such as those by Aldo Panfichi (2013) who has questioned the traditional trend in the studies on poor neighborhoods, which view them as areas of decadence riddled with delinquency and lacking all form of collective solidarity. In contrast, Panfichi highlights the presence, extent and intensity of the social networks and families in the case of Barrios Altos, located in the historic center of Lima. “Due to limitations and characteristics of collective dwellings, families are small, but their networks are extensive and have an intense street social life. What many outside observers call “anomie” is actually the dispute over scarce goods between networks of friends and neighbors. Therefore, there would not be indifference but rather a hard and vital struggle for survival in an encapsulated environment.” (Panfichi 2013, 84)

As Li et al. (2005) point out, this form of social capital generates much more trust among members than other form of social capital that rely more on social organizations. From the perspective of the issue of violence against women, the increasing number of these spaces in context of segregation may be producing a positive effect, inasmuch as networks may help women find forms of protection, confidence and certainty to address the issue. As Basu (2008) points out, in these social spaces, women may overcome isolation as they build up social trust.

**Sample, Methods and Variables**
Segregation studies have two empirical difficulties that are not always adequately addressed. The first one is the verification that contexts of segregation do exist. This is not a minor problem in Peru. The segregation data estimated on the basis of censuses does not necessarily agree with the more local perspective, where, as noted, there is more heterogeneity.

The second complication stems from the difficulties of identifying the neighborhood effects; first, finding the neighborhood boundaries, beyond their political boundaries. Morenoff, Sampson and Raudenbush (2001) note that political boundaries and, in general, any boundary used to divide the urban space, are defined by their porousness. Neighborhoods are interconnected with their surroundings and the rest of the city. So in contemporary cities, social ties are no longer confined to the neighborhood area. This may be the case of districts that were formed as part of the peripheral growth driven by the informal self-build housing market in the city of Lima, where their residents have ties to other areas of the city where they used to live 15 or 20 years ago, and even other regions of the country. So the delocalized nature of the neighborhoods must be highlighted. Second, it is not easy to avoid attributing effects to the neighborhood contexts when in fact the effects are related to the characteristics of people. The composition of the neighborhoods is often self-selected in the sense that poor families go to poor neighborhoods.

We think that the information from the NOPOOR survey and the way neighborhoods were defined will help us cope with both challenges.

Sample
The sample used in this study was obtained from a stratified random sampling conducted in five districts of Metropolitan Lima: *Carabayllo, El Agustino, Chorrillos, San Juan de Lurigancho and Villa el Salvador*.

These districts are characterized by a population ranging between 180,000 and 900,000 inhabitants, with El Agustino and San Juan de Lurigancho being the least and most populous districts, respectively (INEI 2007). The poor social conditions in these five areas involve various fields such as education, access to basic services, income, urban violence, among others.

In all the selected districts, less than half of youngsters between 20 and 29 years have had access to higher education, with El Agustino being the most critical case. Only 34.5% of youngsters in that district, in that age group, have been able to reach that level—whether complete or incomplete—. Chorrillos, in turn, was the district with the highest percentage of access to higher education (46.7%) in this group (INEI 2007).

On the other hand, high rates of poverty are recorded in the five districts. Carabayllo has the highest percentage of both income and non-income poverty² in this group (29.7% and 33.1%, respectively), while Chorrillos shows the lowest figures (15.8% and 22.4%, respectively) (INEI 2007).

Also, the lack of access to basic services, such as potable water, shows the precarious situation of these areas. Carabayllo is listed, again, as the district with the highest percentage of households that do not have this service (35.4%), while El Agustino has the lowest figure in this group (4.1%) (INEI 2007).
It is worth emphasizing that these characteristics are related to the time for urban consolidation of these districts, and their proximity to the city center. El Agustino, being part of the urban center of Lima and which, therefore, has had a longer time for consolidation, has no major problems regarding the access to basic services, unlike the other districts which are located in the outskirts of the city.

The number of households interviewed in the sample was 2,813 and the fieldwork took place in July, August and September 2013. The selected households were located in specific areas of the aforementioned five districts, which showed different patterns of segregation.

The types of segregation are described below according to the selected areas:

- Carabayllo (LL-LL): conurbation of blocks of low socioeconomic status surrounded by blocks of low socioeconomic status.
- El Agustino (LL-HH): conurbation of blocks of low socioeconomic status surrounded by blocks of high socioeconomic status.
- Chorrillos (LL-HH): conurbation of blocks of low socioeconomic status surrounded by blocks of high socioeconomic status.
- San Juan de Lurigancho (MX-LL): conurbation of blocks of mixed socioeconomic status surrounded by blocks of low socioeconomic status.
- Villa El Salvador (LL-MX): conurbation of blocks of low socioeconomic status surrounded blocks of mixed socioeconomic status.
The only areas that showed the same pattern of segregation were El Agustino and Chorrillos. However, both areas were considered to be included in the sample as these districts have different histories of consolidation, which aimed to enrich the analysis.

As mentioned above, 5 areas were determined for this study, which defined different types of segregation. Nevertheless, within each area established a priori, there was still much heterogeneity of neighborhoods. After two ethnographic fieldworks we tried to address this problem. Families were grouped according to the quarter and/or neighborhood to which they belong within each of the 5 areas. This post-categorization resulted in the existence of 39 neighborhoods within all areas of the NOPOOR survey. For a better capture of contexts, these neighborhoods were used within each of the areas.

Since the study focuses on violence against women, only those women who had already had a partner and, therefore, responded to the household violence module, were considered as part of the analytical sample. In addition, households consisting only of men were eliminated. In this way the sample for this study comprises 2,545 households.

Finally, the survey collected information on violence against women, experiences of violence in childhood of both women and their partners; and situations of violence against children at home. Furthermore, socio-demographic data of the respondents, such as housing characteristics; ownership of assets; educational and occupational data; information on family history; occupational and residential history of the household head and spouse; was obtained. In addition, information about the neighborhood, which focused on the violence experienced by the household members in the urban environment, was included.

*Statistical Model*
The methods used to answer the research questions of this study are presented in this section. First, a logistic regression analysis is conducted to identify the effects of the individual, family, history of violence and contextual variables on the likelihood that a woman has ever been subjected to physical violence. The aim of this type of analysis is to provide the study results by using the type of statistical modeling that most studies on the subject have used. Finally, the structural equation modeling (Kline 2005) is presented to answer the research question related to the mechanisms (social norms and assistance or support by the neighbors) used by economic segregation to influence the likelihood that a woman has ever been subjected to physical violence. This modeling allows us to present how economic segregation has direct and indirect effects to influence the likelihood that a woman has experienced physical violence.

*Logistic regression model*

Two logistic models were estimated for this study. Firstly, it was estimated to what extent individual, family and history of violence variables influence the likelihood that a woman has ever experienced physical violence. Secondly, the variable of economic segregation at neighborhood level is included in the regression model so that the effect of the context on the likelihood that a woman has ever experienced physical violence can be seen.³

*Structural equation model*

As mentioned above, the structural equation model is used to see the indirect effects or pathways (social norms and support or assistance among neighbors) of economic segregation at neighborhood level on the likelihood that a woman has ever experienced physical violence.
One of the main advantages of this type of modeling is that different equations are estimated simultaneously, that is, there is a system of two or more equations. Thus, a variable can play different roles within the system of equations to be estimated. In other words, a variable can be explanatory in one equation and then can be used as a dependent variable in another equation within the system of equations to be estimated. In the case of this study, the variables that play this double role are the mechanisms through which economic segregation influences violence against women. Other advantage is that this type of modelling allows us to correlate the errors of different equations within the proposed system. In this way, the possible correlation of unobservable factors between an equation and another can be controlled.

Finally, the structural equation model proposed in this study does not take into consideration the modelling of latent variables, only a system of equations is modelled simultaneously, that is, there will be more than one endogenous variable in the model, which are: support or assistance among neighbors, social norms in the neighborhood and physical violence against women.\(^4\)

In visual form, the model to be estimated and the hypotheses of the relationships are:

<Figure 1 here>

**Variables included in the study**

The variables included in the analyses of this study are presented below. They are grouped according to the following types: i) dependent variable, is the variable that this study aims to explain; ii) mediator variable, is an endogenous variable that in an equation plays the role
of explanatory variable and in another equation is dependent; iii) independent variables, are variables that are exogenous and do not depend on any variable.

**Dependent variable:**

- Physical Violence: it was considered that a woman had suffered physical violence if she answered affirmatively to at least one of the following questions: Has your most recent spouse or partner: i) pushed you, shaken you or thrown something at you?, ii) slapped you or twisted your arm?, iii) punched you or hit you with something that could hurt you?, iv) kicked you or dragged you on the ground?, v) tried to strangled you or burned you? vi) attacked/assaulted you with a knife, gun or other weapon?. The mean is 43%, and the standard error is 1%.

**Mediator variables or Mechanisms**:

- Social capital: average at neighborhood level of the number of ways that neighbors help/support the respondent. It was considered that the woman received support from her neighbors if she believes that the neighbors are close in the neighborhood; if when facing a problem, her neighbors get together to address it; if she can count on them when facing a problem or seeking help; if she can borrow money from them; if she believes that her neighbors share similar values; and if when facing problems in public spaces, her neighbors intervene.

- Gender norms: average at neighborhood level of the number of control situations that respondent ever suffered from her husband/partner. It was considered that the woman was controlled by her spouse if he becomes jealous when she talks to other people, if he accuses her of being unfaithful, if he prevents her from visiting her family members, if
he tries to restrict her family visits, if he insists on knowing where she always is, and if he is suspicious of what she does with the money.

**Independent variables**

**Individual Variables**

- **Age:** age in completed years (mean: 41, standard error: 0.3).
- **Education Level of Women:** qualitative variable taking the value 1 if a woman with complete secondary or higher, and 0 otherwise (mean: 41%, standard error: 1%).
- **Mother Tongue:** qualitative variable taking the value 1 if the language that she learned first was an indigenous language, and 0 otherwise (mean: 24%, standard error: 0.8%).
- **Place of Birth:** qualitative variable taking the value 1 if the woman was not born in the Lima region, and 0 otherwise (mean: 69%, standard error: 1.7%).
- **Currently working:** qualitative variable taking the value 1 if the woman at the time of the interview said that she had a steady job or ran an income-generating business or performed any activity at least one hour in order to produce income, otherwise it is set to 0 (mean: 47%, standard error: 1%).

**Family Variables**

- **Living with her partner:** qualitative variable taking the value 1 if the woman lives with her spouse and 0 otherwise.
- **Number of children:** variable that takes into account the number of children of the respondent.
- **Residential Mobility of the Household Head:** ordinal variable indicating the number of times that the household head has lived, for at least six months or more, in a district
different from where he/she currently lives (mean: 1.8, standard error: 0.03).

- Poverty: qualitative variable taking the value 1 in case the household is in the upper two socioeconomic quintiles and 0 otherwise. For the construction of this index, data obtained on the quality of housing, assets of the respondents, level of overcrowding, and services was used. A variable was created for each of the indicators according to the categories included in each one. Based on this, a factor analysis was conducted using the weights of the National Household Survey (ENAHO – Encuesta Nacional de Hogares), for the year 2013.

- The Woman Experienced Violence in Childhood: qualitative variable taking the value 1 if the woman was beaten as a child and 0 otherwise

- Violence between her parents: qualitative variable taking the value 1 in case the woman asserts that her father beat her mother and 0 otherwise.

**Neighborhood Variables**

- Socioeconomic segregation: indicator that reflects the level of socioeconomic diversity within the neighborhoods that are part of the sample. It is measured by using the percentage of poor people that exists within each neighborhood.

- Years of schooling at neighborhood level: continuous variable that indicates the average years of schooling at each neighborhood for population 24 years old or older.

**Results**

**Descriptive Analysis**

In terms of the study variables, it can be seen in Table 1 that the sample is in average 40 years old. Most of them are not from Lima (but less than a third regard themselves as
indigenous) and have not completed school. Also, we could observe that women who experienced violence are older, less educated, more indigenous, have a job, and live less time with their partner; in comparison with women who did not experienced physical violence.

<Table 1 here>

In terms of family characteristics, in Table 2, we observe that women in our sample have on average 2 children, the household head change residence at least twice and a third of the women are poor. Additionally, we could see that women who suffered of physical violence have more children and have changed their residence more often.

<Table 2 here>

In terms of history of violence, it can be noted in table 3 that 65% of the respondents has experienced violence in childhood, 53% have witness violence between their parents, and 43% are victims of physical violence by their partners. Also, women who experienced physical violence have experienced more violence when they were children and have witnessed more violence between their parents than women who never suffered physical violence by her partner.

<Table 3 here>

On the other hand, in relation to the mechanisms, it can be observed that in areas with more social capital there is less violence, while in areas where gender norms are unfavorable to women (less autonomy) there is more violence.

<Table 4 here>
Since our analytic design proposes a relationship among the context of segregation, gender norms and social capital, some descriptive graphs are provided. It can be seen in the following graphs that in neighborhoods where there is more segregation, there are also more social capital and more prevalence of gender norms unfavorable to women.

<Figure 2 here>

<Figure 3 here>

For this reason, both the logistic analysis to see the net impact of these variables and the structural analysis to break down the effect of segregation through its mechanisms are justified.

**Multivariate Analysis**

To obtain the net effects of each variable, logistic regression models were first estimated in order to identify which individual, family and contextual variables are associated with the different types of violence against women. Using model 1, it can be observed in Table 5 that those women who are older, don’t live with their partners, don’t have basic education, chance residency more frequently, work and have more children are more likely to be subjected to physical violence by their partners. Also, women whose mothers were subjected to violence by their spouse or partner, who experienced violence as children are the most likely to experience physical violence.

Likewise, following Model 2, it can be observed in Table 5 that when entering contextual variables, these individual effects remain. Finally, at the contextual level, neighborhoods
with more segregation experience less violence (although with a significance level of .10), a surprising result that we will analyzed in the next section.

How is socioeconomic segregation related to these mechanisms in relation to violence? To respond this, the structural model is implemented. Figure 4 shows the results of the mediation analysis conducted for each of the channels mentioned above. Firstly, it can be seen that the model has good indicators of overall (RMSEA<0.06) and comparative (CFI>0.90) adjustment, indicating that the proposed system of equations is adequate.

With regard to the effects of economic segregation on the likelihood of a woman experiencing physical violence, it can be seen in Figure 4 that the direct effect is not significant (which was positive in the equation above in Table 5). This means that the overall effect of economic segregation is determined by its indirect effects through the considered mechanisms. On the one hand, economic segregation is positively and significantly associated with more norms of control by the spouse or partner (0.34 SD) and these in turn are positively and significantly associated with the likelihood that a woman will experience physical violence (0.08 SD). On the other hand, economic segregation is positively and significantly associated with a greater presence of social capital among neighbors (0.75 SD) and this in turn is negatively and significantly associated with the likelihood of physical violence against the woman (-0.08 SD).

Finally, what is the overall effect of economic segregation or the balance of the effect of economic segregation through both mechanisms? In the case of gender norms, the indirect
effect of segregation is 0.03 SD (0.34*0.08=0.03) and in the case of social capital, the indirect effect is -0.06 SD (0.75*-0.08=-0.06). Thus, it can be seen that on average, in segregated contexts, support and assistance among neighbors are a factor of most relevance in their relationship with violence against women. Although gender norms unfavorable to women operate directly on violence in contexts of segregation, their effect in such contexts can be moderated by that of social capital.

**Conclusions**

It has been shown that economic segregation operates on violence clearly through two mechanisms. One is based on the reproduction and legitimacy of gender norms favorable to male control and domination over women. Segregation has a positive impact on that factor and this in turn increases the likelihood of violence. The second one, more complex in its dynamics, is related to the social capital. In contexts of segregation, a greater intensity of social ties is often developed through support networks. These networks in turn help reduce violence. Both results are in line with the analytical model in which the mechanisms through which segregation operates are proposed.

Therefore it is important to continue researching issues of segregation, going beyond the descriptive level and responding to the question of what social processes are activated in such contexts. It has been shown that at least as far as violence is concerned, the consequences of segregated living are not necessarily negative, as empirical studies have pointed out. Other studies should do the same with other issues related to development, putting aside descriptive and essentialist approaches to economic segregation.
This finding is also an important element for public policy. In those communities where violence is normalized and justified as part of the couple’s relationship, reporting to the police is considered shameful because it exposes private problems, and thus they are less likely to seek help in the formal system (Alvidrez 1999; Bauer, Chin and Chang 2000; Benavides et al. 2015a; Morrison et al. 2006; Mujica, Zevallos and Vizcarra 2013). In Peru, less than one quarter of women report violence. One of the reasons why violence cases are not reported is the lack of trust in public institutions since many of them reproduce gender stereotypes. Developing these support networks may help address this problem, delegitimizing negative social norms regarding women wherever they operate and bringing people closer to public institutions.

Notes

1. Concurrently, other authors suggest positive effects of segregation such as the consolidation of a greater social cohesion through grass-roots solidarity mechanisms and the formation of a collective identity among the inhabitants at neighborhood level since they share a series of features such as the same ethnic origin or a similar migrant condition (Lobo 1984; Martin 2000).

2. At least one unsatisfied basic need.

3. Further details on the proposed nonlinear model can be found in Appendix 1.

4. Further details on the proposed structural equations model can be found in Appendix 1.

5. The reliability of the scale was 0.7 for both mechanisms according to Cronbach’s Alpha. It is necessary to specify that the mechanisms are dependent variables within the system of equations proposed for the Structural Equation Model.
References


Benavides, Martin, Juan León & Marcela Pone de León. 2015b. The co-occurrence of domestic and child violence in urban Peru: evidence from three regions. *Journal of Family Violence*, 30(8), 1045-1053.


Menéndez Álvarez-Dardet, Susana, Javier Pérez Padilla & Barbara Lorence Lara. 2013. La violencia de pareja contra la mujer en España: Cuantificación y caracterización del problema, las víctimas, los agresores y el contexto social y profesional. *Psychosocial Intervention, 22*(1), 41-53.


Appendix 1. Specification on the linear regression model and structural equations model

The models to be estimated are:

**Model 1: Effect of the individual and family variables on physical violence against women**

\[
\ln \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 I_j + \beta_2 F_j + \beta_3 A_j + \beta_4 C_j
\]

- \(p\) : likelihood that the event Y will occur (physical violence against the woman), \(p(Y=1| I, F, A, C)\)
- \(p/(1-p)\) : ratio of likelihood (occurrence or non-occurrence of the event Y)
- \(\ln \left( \frac{p}{1-p} \right)\) : logarithm of the ratio of likelihood of occurrence of the event Y
- \(I_j\) : individual variables (e.g., education).
- \(F_j\) : family variables (e.g., number of children).
- \(A_j\) : variables related to the history of violence of the woman (she was beaten as a child or her father beat her mother)
- \(C_j\) : neighborhood-level or contextual variables.
- \(\beta_0\) : is the intercept
- \(\beta_1, \beta_2, \beta_3, \beta_4\) : is the effect of the independent variables on the likelihood that Y will occur (logit score).

**Model 2: Effect of economic segregation on physical violence against women**

\[
\ln \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 I_j + \beta_2 F_j + \beta_3 A_j + \beta_4 C_j + \beta_5 SE_j
\]

- \(p\) : likelihood that the event Y will occur (physical violence against the woman), \(p(Y=1| I, F, A, C, SE)\)
- \(p/(1-p)\) : ratio of likelihood (occurrence or non-occurrence of the event Y)
- \(\ln \left( \frac{p}{1-p} \right)\) : logarithm of the ratio of likelihood of occurrence of the event Y
SE_j : variable associated with economic segregation (percentage of poor people in the neighborhood).
I_j : individual variables (e.g., education).
F_j : family variables (e.g., number of children).
A_j : variables related to the history of violence of the woman (she was beaten as a child or her father beat her mother).
C_j : neighborhood-level or contextual variables.
\( \beta_0 \) : is the intercept
\( \beta_1, \beta_2, \beta_3 \) : is the effect of the independent variables on the likelihood that \( \beta_4, \beta_5 \) Y will occur (logit score).

**System of structural equations**

The model to be estimated is determined by:

\[
B_1 = \lambda_0 + \lambda_1 SE + \lambda_2 C + \varepsilon_1 \quad \text{(Social norms)}
\]
\[
B_2 = \beta_0 + \beta_1 SE + \beta_2 C + \varepsilon_2 \quad \text{(Community support)}
\]
\[
Y^* = \phi(a_0 + a_1 B_1 + a_2 B_2 + a_3 I + a_4 F + a_5 A + a_6 C + a_7 SE + \varepsilon_3) \quad \text{(Physical violence against women)}
\]

\[\text{cov}(\varepsilon_1, \varepsilon_2) \neq 0\]

\( Y^* \) : likelihood of a woman experiencing physical violence
\( B_1 \) : social norms in the neighborhood
\( B_2 \) : community support
\( \lambda_0 \) : intercept for the model of social norms
\( \beta_0 \) : intercept for the model of community support
\( a_0 \) : intercept for the model of physical violence against women
\( \lambda_m \) : coefficients associated with each independent variable in the model for \( B_1 \)
\( \beta_m \) : coefficients associated with each independent variable in the model for \( B_2 \)
\( a_m \) : coefficients associated with each independent variable in the model for \( Y^* \)
\( I_j \) : individual variables.
\( F_j \) : family variables.
\( A_j \) : variables related to the history of violence of the woman.
\( C_j \) : neighborhood-level or contextual variables.

\( SE_j \) : contextual variables.

**Figure 1. Flow chart of the proposed system of equations**
Figure 2: Relationship between segregation and support from neighbors

Source: 2013 Segregation Survey. Prepared by the authors.

*Significant at 5%
Figure 3: Relationship between segregation and control by the spouse

Source: 2013 Segregation Survey. Prepared by the authors.

*Significant at 5%
Figure 4: Results of the structural equation model

Note: The model includes the following control variables: age, education, mother tongue, place of birth, she has a job, she lives with her partner, number of children, residential mobility of the household head, level of well-being, history of violence (if she suffered child punishment and if her mother was beaten when she was a child), average years of education at neighborhood level and the mechanisms (social capital and social gender norms). Finally, the mechanisms include the average years of education at neighborhood level.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1
Table 1: Individual characteristics of the sample

<table>
<thead>
<tr>
<th>Individual characteristics</th>
<th>All sample</th>
<th>Women that suffered physical violence</th>
<th>Women that didn't suffer physical violence</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>40.6</td>
<td>41.67</td>
<td>39.76</td>
<td>1.91</td>
</tr>
<tr>
<td>Education (Completed secondary education or higher)</td>
<td>41.60%</td>
<td>35.50%</td>
<td>46.10%</td>
<td>-0.11</td>
</tr>
<tr>
<td>Mother Tongue (Indigenous)</td>
<td>23.70%</td>
<td>26.60%</td>
<td>21.70%</td>
<td>0.05</td>
</tr>
<tr>
<td>Place of Birth (outside Lima)</td>
<td>66.70%</td>
<td>67.60%</td>
<td>66.10%</td>
<td>0.02</td>
</tr>
<tr>
<td>Woman has a job</td>
<td>45.70%</td>
<td>49.30%</td>
<td>42.90%</td>
<td>0.06</td>
</tr>
<tr>
<td>Woman lives with her partner</td>
<td>76.40%</td>
<td>70.40%</td>
<td>81.20%</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

***p<0.001, **p<0.01, *p<0.05, +p<0.10

Source: 2013 NOPOOR Survey. Prepared by the authors
<table>
<thead>
<tr>
<th></th>
<th>All sample</th>
<th>Women that suffered physical violence</th>
<th>Women that didn’t suffer physical violence</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children</td>
<td>1.88</td>
<td>2.02</td>
<td>1.78</td>
<td>0.24</td>
</tr>
<tr>
<td>Residential mobility of the household head</td>
<td>1.89</td>
<td>2</td>
<td>1.81</td>
<td>0.19</td>
</tr>
<tr>
<td>Low level of well-being</td>
<td>32.8%</td>
<td>33.8%</td>
<td>32.0%</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*p<0.001, **p<0.01, *p<0.05, +p<0.10

Source: 2013 NOPOOR Survey. Prepared by the authors
Table 3: History of violence

<table>
<thead>
<tr>
<th></th>
<th>All sample</th>
<th>Women that suffered physical violence</th>
<th>Women that didn't suffer physical violence</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women suffered child punishment</td>
<td>65.4%</td>
<td>70.8%</td>
<td>61.8%</td>
<td>0.09</td>
</tr>
<tr>
<td>Woman's mother was beaten when she was a child</td>
<td>53.1%</td>
<td>59.7%</td>
<td>48.4%</td>
<td>0.11</td>
</tr>
</tbody>
</table>

***p<0.001, **p<0.01, *p<0.05, +p<0.10

Source: 2013 NOPOOR Survey. Prepared by the authors
### Table 4: Mechanisms

<table>
<thead>
<tr>
<th></th>
<th>All sample</th>
<th>Women that suffered physical violence</th>
<th>Women that didn’t suffer physical violence</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social capital</td>
<td>2.89</td>
<td>2.86</td>
<td>2.91</td>
<td>-0.05</td>
</tr>
<tr>
<td>Social gender norms</td>
<td>0.27</td>
<td>0.43</td>
<td>0.15</td>
<td>0.27</td>
</tr>
</tbody>
</table>

***p<0.001, **p<0.01, *p<0.05, +p<0.10

Source: 2013 NOPOOR Survey. Prepared by the authors
Table 5: Effect of the individual, family, history of violence and economic segregation variables on violence against women

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>EM</td>
</tr>
<tr>
<td><strong>Individual variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.01</td>
<td>+</td>
</tr>
<tr>
<td>Education (Completed secondary education or higher)</td>
<td>-0.24 *</td>
<td>-6</td>
</tr>
<tr>
<td>Mother Tongue (Indigenous)</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Place of Birth (outside Lima)</td>
<td>-0.00</td>
<td></td>
</tr>
<tr>
<td>Woman has a job</td>
<td>0.17</td>
<td>+</td>
</tr>
<tr>
<td>Woman lives with her partner</td>
<td>-0.56 ***</td>
<td>-14</td>
</tr>
<tr>
<td><strong>Family variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>0.16 ***</td>
<td>4</td>
</tr>
<tr>
<td>Residential mobility of the household head</td>
<td>0.07 *</td>
<td>2</td>
</tr>
<tr>
<td>Low level of well-being</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>History of violence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman suffered child punishment</td>
<td>0.38 ***</td>
<td>9</td>
</tr>
<tr>
<td>Woman’s mother was beaten when she was a child</td>
<td>0.43 ***</td>
<td>10</td>
</tr>
</tbody>
</table>
**Neighborhood variables**

Average years of education at neighborhood level (24 or older)  
-0.05  -0.10

Socioeconomic segregation  
-0.54  *  -13

*Constant*  
-0.58  -0.01

Observations  
2,389  2,389

Loglikelihood  
-1555  -1552

Cluster-adjusted by neighborhoods

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1
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Scientific Coordinator: Xavier Oudin (oudin@ird.pdr.fr)
Project Manager: Delia Visan (delia.visan@ird.fr)

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