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# Better off by law? The Association between a Constitutional Reform and the Subjective well-being of the LGBT community

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# Better off by law? The Association between a Constitutional Reform and the Subjective well-being of the LGBT community

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**Keywords:** Ecuador; LGBT; discrimination perceptions; well-being; Constitutional reform.

**JEL Codes:** J15, J18.

## 1. Introduction

Even though political and social positions regarding LGBT groups softened between the 1990s and 2010s in Latin America, contrarian public opinions and discrimination are still commonplace and, in fact, some authors argue they have expanded as of lately (e.g., Ayoub & Page (2020), Chaux et al. (2021), Corrales (2020) and Perez (2020)). The political literature tends to associate this pull back with the region's strong presence of religious collectives, openly homophobic leaders, and the resistance of the elite groups all which are referred to as "conservative" forces. At the same time, most authors coincide in that a decaying economic environment is associated with fewer opportunities for those openly identifying themselves as LGBT. Thus, individuals from the Latin American LGBT minority may be in a vicious cycle of adversity, where they face social discrimination for their identities and are unable to access the same economic opportunities as the rest of the population.

Only recently, political scientists have focused their attention on the LGBT community, with a special focus on understanding democratization in Latin America (Corrales & Pecheny, 2010).[1] The underpinning theoretical basis in the political literature is that in a society organized around heterosexuality as the ideal, LGBT individuals face a different set of concerns than that of the rest of the population. This is understood as gay men and lesbians valuing the ability to express their orientations and desires openly without discrimination (and/or civil punishment), and transgender individuals valuing the social recognition of their gender identity. However, few of the available analyses that one can find go beyond normative assertions to quantitatively measure the effect of discrimination on relevant individual constructs. To this extent, this paper provides an analysis of subjective well-being over a sample of LGBT individuals to provide a comprehensive assessment of the effect of discrimination on self-reported

[1] Corrales & Pecheny (2010) provide a review on Latin America's politics and its LGBT environment.

well-being. In particular, we consider the interesting case study of Ecuador, the first country in the Latin American region to decriminalize homosexuality.

Through the enactment of two new Constitutions eleven years apart, in 1997 Ecuador both decriminalized homosexuality and in 2008 it recognized families forming from same-sex civil unions. Oddly, in 2008 same-sex marriage was banned and other conservative prohibitions were implemented, in particular abortion. As Lind & Keating (2013), in one the few analyses on Ecuadorean LGBT politics, point out, these contradictory stances may have happened be due to homophobic conceptions deeply rooted in the country's political elite, which at the time was rapidly swiveling the country away from its Neo-liberalist economic era. But beyond political agendas, the contradiction in this policy enactment suggests that the country's LGBT community never perceived the benefits associated to political inclusion and recognition, even after de 1997 enactment. As it will be shown with data, the age of LGBT individuals and whether they were old enough to benefit from the 1997 Constitutional decriminalization does not seem to have any effect on reported discrimination and well-being measures. Hence, the recent set back of public opinion, as described by authors such as Corrales (2020), could be happening now because the inclusion attempts through policy never attained results that were strong enough for the minority to attain resilience and widespread acceptance in the society.[2]

In this light, the main objectives of the present paper are two: $(i)$ show that there is a strong negative relationship between subjective proxies of hedonic well-being and discrimination per-

[2]Contextually, around the same time the new 2007 Constitution was enacted, the country was also in the midst of a social crisis due to the presence of "reparative" anti-LGBT centers that illegally marketed themselves as "clinics". These centers offered services advertised to "treat" a gay or lesbian individual to get them into heterosexuality. This, in many instances, involved the use of physical and psychological violence, with some cases reported involving forced confinement, food inhibition, and even enforced disappearances. The clandestine clinics of this type were part of a much larger trend: many of the existing centers also offered non-professional treatments for individuals suffering from alcohol and drug addictions. The demand for these clinics (in most of the cases, coming from people within the family circle of the individual) can be related to the strong heteronormative environment that was present in the country at the beginning of the 21st century (Corrales & Pecheny, 2010; Xie & Corrales, 2010)

ceptions, which is indicative of the how discrimination against the Ecuadorean LGBT population affects their psychological standard of living; and ($ii$) show that there is quantitative evidence supporting the hypothesis that the Ecuadorean reform of 1997 did not influence well-being measures and discrimination perceptions. Despite not being able to confidently make a case for external validity, for reasons to be discussed shortly, we make the case that our results are consistent with the political literature even after controlling for individual characteristics, all while also assessing the validity of subjective measures of the relevant constructs. Just as most studies that attempt to quantify evidence around discrimination and well-being rely on subjective measurements, we opt to do the same by making use of a database that, to our knowledge, has not been fully exploited for research.

We use a sample of the Ecuadorean LGBT population collected by the country's National Institute of Statistics and Census (INEC, for its Spanish acronym), from its first and only measurement of LGBT life conditions in 2013. This data is publicly available from the institution. The survey was composed of several sections, each designed to measure a different aspect of the LGBT experience of the respondents. There are sections devoted to asking discrimination and violence experiences within the family, the job environment, and the education context. With this, we construct global (subjective) measures of well-being and discrimination perceptions. Since well-being is not measured directly in the survey (i.e., people were not asked about their relative happiness or their overall life satisfaction), we compute similar proxy variables using available responses to questions about personal feelings and mental state (feelings such as sadness, anxiety, futility, exclusion, suicide thoughts and others), which are indicative of hedonic pleasure ("feeling good") throughout their life.[3]

[3] The measuring constructs such as well-being, directly and subjectively, is not new, and is considered to be a way to empirically assess research questions in the economic, sociologic, and psychologic fields. Readers are referred to Andrews & Robinson, (1991), Argyle (1999), Diener (2009), Kahneman et al. (2004), Kahneman & Krueger (2006), and Krueger & Schkade (2008). Often, the necessity to do so comes from the fact that not only subjectivity is the only way to measure a construct, but the associated response may capture other correlated factors that are also useful. A typical example is that of trying to measure

An important aspect we recognize is that subjective measures depend on transitive, contextual, and demographic factors that arise at the moment of measurement. There is robust and well-known evidence that the responses provided by individuals depend on their current mood and memory, themselves influenced by external transitive phenomena like the weather (Schwarz & Clore, 1983), temporary illness and impairment (Cohen et al., 2003; Kiecolt-Glaser et al., 2002), and exposure to risk (Loewenstein et al., 2001). As such, subjective measures are unverifiable, as they are retrospective judgements realized once at the moment of measurement, and may have a different realization if the same question is asked at a different point in time (Kahneman & Krueger, 2006). Thus, our variables of well-being and discrimination must be interpreted as the retrospective measures, realized at the moment of survey implementation, which indicate how the individuals felt about their LGBT experience and what they remembered from their past.

To (imperfectly) assess the validity of subjective measures we consider the magnitude of the correlation of well-being and discrimination perceptions with other individual characteristics. And, although due to the sampling process there is possibility of measurement error, we argue that this is not a big concern as our results seem to be coherent with previous literature.[4]

The data we use requires special considerations considering that, for contextual reasons relating to the social conceptions described above, the Ecuadorean LGBT community is considered to be a "hidden population". This means that a sample is difficult to draw randomly, and for to practical considerations other non-probabilistic methods are considered more suitable in the phase of survey implementation. In this case, the sample was obtained using the most elemental form of snowball sampling (Coleman, 1958).[5] Evidently, using a non-random sample

individual economic welfare, where one may not only be interested in quantitatively measuring consumption and income but also how the individual *feels* about them.

[4] It must be noted that in the economic field, subjective measurements are also managed by treating the variables as noisy in their reliability assessments. See Krueger & Schkade (2008).

[5] In this form of snowball sampling, the researcher starts with whomever individuals from the population of interest she can find. Then, data collection is performed on them, and each is asked to name some specific number of acquaintances, friends,

raises external validity concerns, as individuals in the sample may not be representative of the LGBT population. Meaning that the observed and unobserved characteristics of the sample may not be the same, on average, as those of the overall LGBT population. Nevertheless, our results are still indicative of how discrimination is associated to well-being, and of how the latest Constitutional reform failed to influence these variables at least on those individuals who were surveyed.

On one hand, we find a strong negative relationship between well-being and discrimination perceptions on the family and social circles, which is robust to various specifications and holds for different subsets of the sample. Since one may worry that individuals are inherently different among themselves, we compute the estimates associated to subsamples, either by membership status to a LGBT organization (whose members could have systematically different experiences than the non-members) and by sexual identity (gays, lesbians, and bisexuals vs. trans). The magnitude of the estimate of perceived discrimination on well-being is relatively unchanged throughout all specifications. We find that for a LGBT individual, suffering from any particular type of discrimination (e.g., having experienced physical violence in the family circle or enforced isolation while on school) will have on average a well-being index that is 2 percentage points lower. The biggest effect we find is for that of discrimination perceived within the family circle, which we find by treating family and social discrimination as separate variables. An individual suffering any type of discrimination within their family circle (for example, ever having been forced to dress according to their sex at birth) will have on average a well-being index that is 5 percentage points lower.

Regarding the effect of the 1997 Constitutional reform, we find that individuals do in fact have lower discrimination perception rates, but only for the discrimination that is experienced

or family members to be part of the sample. The researcher repeats this process with the new set of individuals and does this procedure as many times as she may need. Each repetition is called a "stage."

in the family. By separating across cohorts in our regression models, we find that the younger individuals have perceived less discrimination in their families than their older counterpart. Nevertheless, it is seen that the reported measures of well-being are virtually unchanged across cohorts, implying that there is probably no effect on the mental state of LGBT individuals of having decriminalized homosexuality.

In general, these findings are consistent with the available theoretical literature in that individuals have not benefited from the 1997 Constitutional reform. And, while we cannot reject that younger individual may have faced similar discrimination rates in the family circle, our overall results are indicative that the social conceptions around the LGBT community have possibly not changed throughout time: they all have, on average, the same perceptions of social discrimination, and the decrease of perceived discrimination in the family is dwarfed when using a discrimination index that equally weights both the family and social contexts. And while the 1997 Constitutional reform (and subsequently the one in 2007) is often cited as an advancement towards inclusion and improvement of LGBT rights, the thing about pre- and post-legality of the LGBT is that it is strongly dependent on institutional adaptation: laws tend to change faster than institutions (Corrales, 2015).

The remainder of the paper is organized as follows. Section 2 contains a detailed description the data and the summary statistics. Section 3 describes the identification strategy and presents the estimation results and, finally, Section 4 concludes.

## 2. Data and summary statistics

The "*Estudio de caso sobre las condiciones de vida, inclusión social y cumplimiento derechos humanos de la población LGBTI en el Ecuador"* is a survey-based study conducted in 2013 by the Ecuadorean institution in charge of macroeconomic statistics, INEC (*Instituto Nacional de Estadísticas y Censos*), which aims to estimate the living conditions of citizens belonging to

the LGBT community in Ecuador.[6] The official report presenting the aforementioned study of INEC establishes as a motivation for the study the latest version of the country's Constitution from 2008, which explicitly acknowledges sexual diversity.

The survey was composed of several sections, each designed to measure a specific dimension of the respondent's experience for his/her LGBT identity. Since all sections were composed of multiple questions, all of the binary-response type, we construct global measures of the relevant sections to use as our dependent and independent variables. The dataset consists of 2,122 different individuals from 10 different provinces from the country.[7] The survey implementation and data collection process were done with support of formally established LGBT organizations at the time: 11 were identified, and all of them worked in conjunction with INEC in the implementation phase. The original survey had 9 sections, covering: living conditions; discrimination, exclusion & violence, health, education, occupation, justice, human rights, and civil participation (see Supplementary Material A1).

In particular, discrimination experiences and perceptions were directly asked to the respondents in a single section around two different *themes*: $(i)$ discrimination within the family or household, and $(ii)$ discrimination in the "outer" social context.[8] There were 38 yes/no questions in total, with 13 of type $(i)$ and 25 of type $(ii)$. To obtain a global measure of discrimination perceptions, we calculate a simple average:

$$D_i = \frac{1}{38}\left[\sum_{i=1}^{13} I_i^{\mathrm{F}}(k) + \sum_{i=1}^{25} I_i^{\mathrm{S}}(k)\right]$$

[6] See https://www.ecuadorencifras.gob.ec//documentos/web-inec/Estadisticas_Sociales/LGBTI/Metodologia_estudio_de_caso_LGBTI-octubre2013.pdf

[7] The original sample has 2,805 individuals, and after removing outliers and observations with no responses in the relevant variables, we are left with 2,122 in total.

[8] Questions regarding discrimination experiences on both themes can be further categorized into those involving exclusion, violence, imposition, and rejection.

where $I_i^{\mathrm{F}}(k)$ is a binary variable that equals 1 if individual $i$ responds "yes" to question $k$ about family discrimination; the same is defined for $I_i^{S}(k)$. Our variable $D_i$ is, theoretically, continuous between 0 and 1. Results shown in Section 4 using this average rely on assigning equal importance to the family and social environment of the individual, assuming all 13 questions about the family environment and all 25 questions about the social environment perfectly capture their associated constructs.

Subjective well-being was not measured using standard questions for the purpose (which directly ask for measurements of happiness or life satisfaction, using either a binary response or a scale). Instead, there is a section containing the following questions:

> *Please indicate whether you have ever been exposed to the following experiences:*
> *(A) Feelings of sadness, anxiety and/or emptiness*
> *(B) Feelings such as guiltiness and/or impotence*
> *(C) Feelings of being excluded from family/coworkers/friends*
> *(D) Feelings of hopelessness and pessimism*
> *(E) Fatigue and lack of energy*
> *(F) Difficulty to concentrate, remember details and take decisions*
> *(G) Difficulty to sleep*
> *(H) Suicide thoughts*
> *(I) Suicide attempts*
> *(J) Irritability*
> *(K) Other*

Because a positive response (a "yes") to each of these questions is associated with a psychological state of discomfort and penury, we use the following as a proxy for well-being

$$S_i = 1 - \frac{1}{11}\sum_{i=1}^{11} I_i^{\mathrm{W}}(k)$$

where $k$ indexes the questions $(A)$ through $(K)$ above, and the binary variable $I_i^{\mathrm{W}}(k) = 1$ if individual $i$ answers question $k$ with a "yes" in the relevant section of the survey. This variable $S_i$ again takes values between 0 and 1, where an observation $i$ such that $S_i = 1$ has the least contact with the negative psychological experiences above.

Table 1 provides descriptive statistics for all relevant variables in the paper, computed using the entire sample of 2,122 individuals. The first six rows describe a set of continuous variables including $S_i$ and $D_i$ from above. Among these, we report indexes (varying between 0 and 1) for discrimination perceived in the family and the social circle. We also report the log of monthly income by the individuals and age in years. The remaining rows correspond to binary variables (covariates) of interest that are later used to capture individual differences. These variables include level of instruction, sex at birth, gender identity, marital status, employment relationship in the occupation, and whether the individual is a member of a LGBT organization. The second column from the table shows the frequency of observations among each type of covariate. Interestingly, all 2,122 individuals reported themselves as having an active occupation (all belong to the economically active population).

Some relevant aspects of the results in Table 1 are that most individuals in the sample were born as males, and the majority possess a university degree. A bit less than half of all individuals identifies themselves as transexuals. (Defined in the survey as people whom "*identify themselves as belonging to the opposite gender of birth and opting for medical intervention, hormonal, surgical or both, to adjust their physical with their psychological reality.*" Transfeminine and transmasculine identities are similarly defined, with the difference that no medical intervention is involved to change appearance.) Also, around ¾ of the total of individuals identify themselves as single in their marital status.

Insert Figure 1 here

As it will be of our interest in further sections, Figure 1 displays graphically the relationship between our discrimination perception measures and age. It is to be expected that, if the Constitutional reform was any effective, the trend should go downwards. As it is seen, discrimination perceptions are almost flat with age, along with the perceived discrimination on the

social environment. Only family discrimination perceptions seem to hold a negative relationship with age.

Insert Table 1 here

### 3.1 Well-being on discrimination perceptions: OLS estimates

We start by estimating the following linear regression with ordinary least-squares (OLS)

[I] $$S_i = \alpha_0 + \alpha_1 D_i + \boldsymbol{X_i'\alpha} + \mu_i$$

where $\boldsymbol{X}_i$ is a column vector of covariates that capture individual characteristics. As each question in the survey was designed to measure a specific aspect of the LGBT context, either around discrimination or overall well-being, it can be understood that, for instance, an individual that has experienced forced isolation in school (see question 3.16 on the Supplementary Material A1) has on average $\hat{\alpha}_1/38$ percentage points more or less in the well-being index. We also estimate

[II] $$S_i = \omega_0 + \omega_1 D_i^F + \omega_2 D_i^S + \boldsymbol{X}_i\boldsymbol{\omega} + \zeta_i$$

with $D_i^F = 1/13 \cdot \sum_{i=1}^{13} I_i^F(k)$ and $D_i^F = 1/25 \cdot \sum_{i=1}^{25} I_i^S(k)$, so that now $\hat{\omega}_2/25$ is the net percentage point increase in $S_i$ for having suffered, forced isolation in school. Similarly, an individual that has ever been forced to dress according to their gender at birth by someone in the family circle (question 2.3, Supplementary Material) will have on average $\hat{\omega}_1/13$ percentage points less in $S_i$.

Table 2 displays the estimates of these regressions. Column [1] shows there is a strong negative relationship between our perceived discrimination and well-being indexes. Column [2] also shows this strong negative relationship holds when separating between perceived discrimination in the family and the social circle as in eq. [II]. Although these estimates are likely biased, for reasons to be discussed shortly, the magnitude of the estimates in [2] seem to suggest

discrimination within the family has the most negative effect on well-being. This may be because discrimination to LGBT individuals tends to arise most often within the family circle, which can be either due to individuals spending more time with their family than their friends or members of their social circle, or due to the family being the most receptive and vocal to the individual.

Columns [3] and [4] show estimates of the same regression but now controlling for other individual factors ($\boldsymbol{X}_i$ in eq. [I]). As age, educational attainment, and income tend to be empirically and theoretically related with overall subjective happiness (Argyle, 1999; Kesebir & Diener, 2008), these specifications include dummy variables for each category as seen in Table 1. We also included dummies for marital status and employment relationship in [3] and [4] to control for individual characteristics even more. Interestingly, neither of these variables, except age and the gender at birth, are significant [the estimates associated to the dummies for education, marital status, employment, and gender identity are not shown to save space]. To control for characteristics related to the environment where the individual lives, columns [5] and [6] include province dummy variables in the estimation. These are intended to capture geographical, social, and environmental characteristics correlated with well-being. For instance, we would expect reported well-being to be systematically different between individuals living in urban and rural areas, or between individuals living in hot and cold areas in the country. The estimates associated to the province dummies [also not shown] are significant in these specifications.

Interestingly, from columns [2] and [3] from Table 2, it is found that on average for every discriminatory aspect that the individual has faced, in their family or social environment, the well-being index will be 2.36 percentage points lower. Separately, an affirmative response regarding discrimination in the family circle is associated to a 5-percentage point decline in the well-being index, while an affirmative response regarding discrimination in the social circle is

associated to a 1 percentage point decrease. Controlling for income, age, sex at birth, sexual identity and province, we find that these magnitudes are relatively unchanged. We see a slight decline on the change associated to an affirmative response for discrimination in the family, to approximately 4-percentage points.

There are several reasons for the estimates in Table 2, despite the strong and expected negative relationship, may not to be interpreted as the effect of perceived discrimination on well-being on the population of LGBT individuals. The key problem is that the sampling procedure was non-random, and the sampling phase involved contacting existing LGBT organizations, whose members are supposed to be LGBT themselves, so as to implement the survey with organization members and their acquaintances.[9]

This method, known in the literature as snowball sampling, allows for the argument that those who took part of the survey are systematically different than those not surveyed, and hence the measures obtained are not representative of the real, underlying LGBT population. It is assumed that all existing LGBT organizations [to INEC's knowledge at the time] were part of the study.

To further illustrate the external validity problems discussed in section 1, one can identify the following mechanisms that would allow for bias:

- Those in the sample could have stronger and different perceptions to discrimination than that of the LGBT population, which may be related to their active participation in an organization, whose purpose is to fight against discrimination and claim rights. In this case, the estimates of discrimination from Table 2 would be upwardly biased.

[9] INEC's methodology paper for the study describes that

> *Each informant was supposed to recruit from 3 to 5 other individuals* [to take the survey] *… At the end of each interview, it was requested that each individual reference other people* [from the population of interest]. *This process was repeated until an interviewee refused to reference others or did not have anyone to reference*. (p. 16, INEC 2013).

- Those in the sample could be systematically different across dimensions other than their perceptions, such as their employment relationship, their occupations, the amount of time they have for leisure, and even their marital status. Controlling for these variables then makes little sense, because it is plausible that the LGBT population as a whole has different values, on average, in these covariates. For instance, while the majority of individuals in the sample report themselves as single, the proportion of each type of marital status on LGBT population may be balanced. The direction of the bias in such case would depend on the real, average, unobserved variables of the real population.
- Those in the sample could be more vocal about their perceptions, so that measurement error is accentuated as opposed to conducting the survey on a random sample. In other words, phenomena such as social desirability bias, recall bias, reporting bias, and other types, could have a larger share in the responses we have.

While it is difficult to show that the data is representative of the Ecuadorian LGBT population with the sampling process being non-random, it must be noted that the majority of investigations that rely on samples face similar [if not the same] issues due to the notion of a "hidden population."[10]

To alleviate concerns regarding biases that may arise due to factors within the sample, we also provide estimates for sets of subsamples that contain plausible differences across individuals and compare the resulting estimates. For instance, within the sample, those individuals

[10] Specifically, the non-random sampling problem is expressed follows. Let the population's (conditional expectation) function be

$$\mathrm{E}(S_i \mid D_i, \boldsymbol{X}_i) = \alpha + \beta S_i + \boldsymbol{X_i'\gamma}$$

for $i = 1, \ldots, n$. The sample's function can be expressed as

$$\mathrm{E}(S_i \mid D_i, \boldsymbol{X}_i, \text{selection rule}) = \alpha + \beta S_i + \boldsymbol{X_i'\gamma} + \mathrm{E}(\varepsilon_i \mid \text{selection rule})$$

where "selection rule" determines which observations of the overall population are included in the sample. Evidently, if the sample is random (so that each individual in the population has the same probability of being in the sample), we would have $\mathrm{E}(\varepsilon_i \mid \text{selection rule}) = 0$ with an estimated $\hat{\beta}$ that is not biased. But, for the snowball sampling method it is clear that $\mathrm{E}(\varepsilon_i \mid \text{selection rule}) \neq 0$. It is important to note that one can correct the bias arising from a snowball sampling method if the number of referenced people by each individual is constant and the initial ("zero stage") sample is random (see Goodman, 1961).

who belong to LGBT organizations may be inherently different than those individuals that are not members of an organization. As such, a plausible concern is that members are more likely to report higher discrimination rates, either because their life experience has been different compared to non-members, or even because they could be more susceptible to desirability, recall and reporting biases.

To assess this, Table 3 shows the estimates associated to the computation of [I] for sub-samples characterized by plausible factors that would lead to bias: membership to a LGBT organization, and sexual identity. It is seen that there is not much variation in the magnitude of the estimates with respect to the results from Table 2, and that both the sign and significance remain constant across all specifications. We may interpret this as the subsamples being relatively balanced with respect to the base sample, in the sense that that the potential effect of discrimination on well-being is similar, on average, no matter membership to an organization or sexual identity (gays, lesbians and bisexuals vs. trans). One may infer that discrimination has a relatively constant effect on well-being across individuals belonging to the sample.

Insert Table 2 here

Insert Table 3 here

### 3.2 Well-being and discrimination on age: Constitutional reforms

This section analyzes the effects of the Ecuadorian Constitutional reform of 1997 that decriminalized homosexuality. Although it did not refer to any other sexual identities besides homosexuality, we test whether there were any implications of the reform across all sexual identities available in the sample.

Firstly, to test whether the environment of the young individuals in the sample was influenced in some way by the enactment of the 1997 reform, we run the following regressions on the well-being index ($S_i$), and the discrimination perception index ($D_i$, along with $D_i^F$ and $D_i^S$):

[III] $$S_i = \beta_0 + \beta_1 \mathbf{1_i}\{\text{Age}_i \leq \phi\} + \boldsymbol{X}_i\boldsymbol{\beta} + \varepsilon_i$$

$$D_i = \beta_0 + \beta_1 \mathbf{1_i}\{\text{Age}_i \leq \phi\} + \boldsymbol{X}_i\boldsymbol{\beta} + \varepsilon_i$$

where $\phi$ is the (hypothesized) age cutoff below which LGBT individuals would have reported lower discrimination and higher well-being rates due to the reform taking place. The variable $\mathbf{1_i}\{\text{Age}_i \leq \phi\}$ is a dummy which takes the value of one if the condition between braces holds: it being that the age of the individual is less than or equal to $\phi$.

Eq. [III] allows us to see whether those individuals who were young at the time the reform was put in place, with their sexual identity not necessarily defined yet, benefited from it in the sense of reporting a reported well-being rate and a lower discrimination perception rate. For instance, one would expect that those individuals who were below 18 years of age in 1997 ($\phi = 34$) have a lower discrimination perception index than the others if the reform influenced the Ecuadorean social conceptions of the population. Furthermore, the reasoning behind having $\phi$ vary is that the sexual identity of an individual is not clearly defined at some fixed age, and this does not necessarily happen before or after adulthood has been reached (this itself is a subject of research in the fields of applied psychology; McCarn & Fassinger, (1996)). For our particular purposes, $\phi$ varies from the youngest age in the sample, 18 years old in 2013, to age

33. Evidently, the reform having an effect on discrimination perceptions and subjective well-being would surmount to rejecting $H_0: \beta_1 = 0$. To assess the potential effects of age and the reform on covariates of interest, we run the same regression as [III] for monthly income, and we further run probit regressions to determine the potential effect on the probability of having kids and the probability of being member of a LGBT organization.

Table 4 displays the estimates of $\beta_1$ from eq. [III] in columns [1], [2], [3] and [4], for the well-being index and the discrimination perception indexes respectively. Columns [5], [6] and [7] show the estimates for monthly income, the probability of having kids, and the probability of being an organization member. It is seen that the well-being rates are for the most part not statistically different from zero. Notedly, the regressions of column [1] control for individual characteristics, and so the results imply that age (and thus the reform) could not have influenced reported well being across cohorts. Similarly, for the estimates associated to age with the discrimination perception index as dependent variable, it is seen that significance is not robust across cohorts despite the expected negative signs. This is also true for discrimination in the social environment (column [4]). On the other hand, the estimate associated to age for discrimination within the family is statistically significant virtually across all cohorts, and the magnitude of the estimates increases as age decreases. Younger individuals from the sample reported having lower discrimination rates within the family, and the younger they are the lower the rates. On average, cohorts born on or after 1985 have a family discrimination perception index 1.7 percentage points lower than cohorts born before 1985. Similarly, cohorts born on or after 1990 have a family discrimination perception index 3 p.p. lower than cohorts born before 1990. It is important to mention that the regressions on columns [1] through [4] all control for income, having kids, membership to an organization, sex at birth, education level, sexual identity and occupation. Interestingly, we find that when the cohort estimate is significant on the discrimination perception index(which equally weights the family and social contexts), the estimate on

the social discrimination perception index is not. This implies that the significance of the equally weighted index is driven by the discrimination perceived in family.

As expected, the income-age relationship is significant, and the magnitude increases with age. This implies that when individuals are separated by cohorts, across the younger and older, monthly income is higher for the older even after controlling for individual characteristics. Also, the probability of having kids is lower for younger cohorts, as is the probability of being member of a LGBT organization. In particular, the younger individuals are less likely to both, have kids and belong to an organization. This is clear from looking from the top-down at columns [6] and [7]. Moreover, columns [5], [6] and [7] also confirm the need to control for income, kids, and being an organization member in specifications [1]-[4].[11] If the estimates in columns [5]-[7] were not statistically different from zero, this would imply that the two age groups (those born before and after $\phi$) are balanced across the covariates.

Insert Table 4 here

## 4. Conclusions

In this paper we analyzed how discrimination perceptions from a group of LGBT individuals are negatively associated with their reported well-being. This suggests that the more present the discrimination is towards them, the more likely they are to have experienced sadness, anxiety, futility, exclusion, and suicide thoughts, which itself is indicative of a low state of well-being throughout their life. With this, we also analyzed how the negative relationship between discrimination and well-being was influenced by a political reform, which would have tentatively diminished these negative effects across cohorts within the sample. Had the reform been effective in changing the environment of these individuals, we would see that the younger cohorts are less influenced by discrimination and have a higher well-being index. We found that

[11] It must be noted that on specifications [5]-[7] from table 4 there is no theoretical relationship formulated between the effect of the reform and the dependent variables. Meaning that the estimates simply reflect the differences that arise due to age.

this only holds for our measure of discrimination coming from within the family, thus implying that individuals of different ages have similar discrimination perceptions around their social environment, and that their well-being is similar on average. Moreover, one cannot confidently attribute the reduction in discrimination from within the family to the reform, considering that there exists the possibility that parental trends have changed across the years: parents and siblings may have become more accepting of their LGBT family as a consequence of other factors.

These results reflect that the legalization of sexual identities that are different from the heteronormative conception, could have little-to-no effect in the population of interest. This may be because the Ecuadorean institutions did not change after the law did, and/or because of legalization by itself cannot be regarded as an effective measure towards social inclusion.

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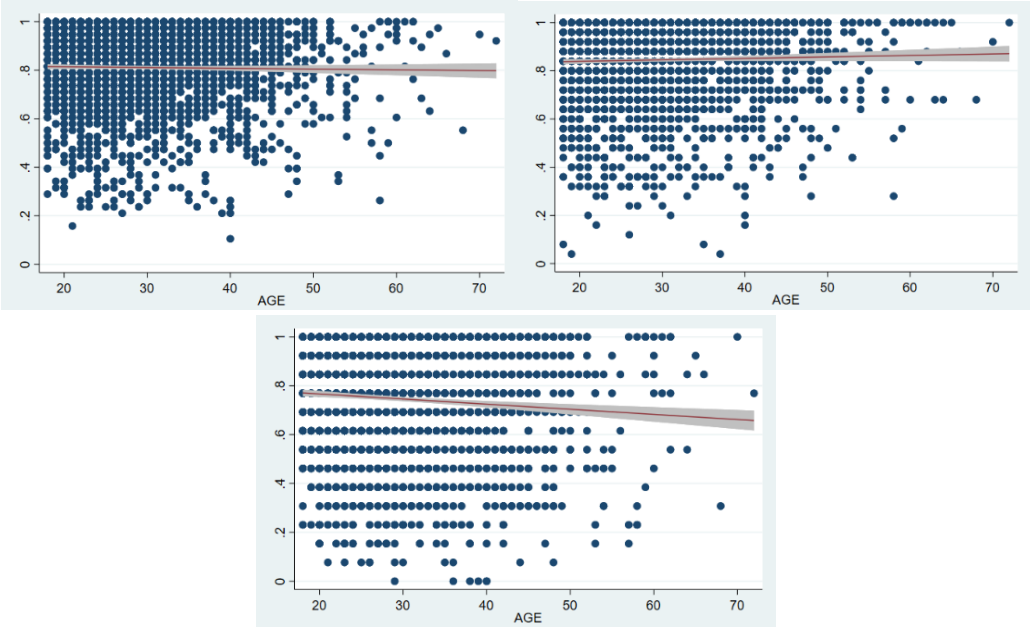


**Figure 1.** Scatterplot of the discrimination perceptions and age. The discrimination perception index is depicted on the y-axis of the upper leftmost plot. The social discrimination perception index is on y-axis of the upper rightmost figure, and the within-family discrimination index is on the y-axis of the bottom figure. The red line on all figures represents the best linear regression fit, and its confidence interval to a 95% level is in gray.

**Table 1.** Descriptive statistics

| Variable | Freq. | Abs. Freq | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| Well Being | | | 0,323 | 0,260 | 0 | 0,91 |
| Discrimination (family) | | | 0,845 | 0,173 | 0,04 | 1 |
| Discrimination (social) | | | 0,807 | 0,171 | 0 | 1 |
| Discrimination | | | 0,827 | 0,153 | 0,104 | 1 |
| Age | | | 29,446 | 9,148 | 18 | 72 |
| log(income) | | | 5,957 | 0,668 | 1,79 | 8,70 |
| *Offspring* | | | | | | |
| No kids | 2343 | 0,894 | | | | |
| Has kids | 277 | 0,106 | | | | |
| *Education and Instruction level* | | | | | | |
| None | 7 | 0,003 | | | | |
| Alphabetization | 2 | 0,001 | | | | |
| Primary | 160 | 0,061 | | | | |
| Secondary | 554 | 0,211 | | | | |
| Basic education | 59 | 0,023 | | | | |
| Bachelor | 557 | 0,213 | | | | |
| Post-Bachelor | 48 | 0,018 | | | | |
| Superior (no university) | 112 | 0,043 | | | | |
| Superior (university) | 1063 | 0,406 | | | | |
| Masters degree or higher | 52 | 0,020 | | | | |
| *Sex at birth* | | | | | | |
| Male | 1737 | 0,663 | | | | |
| Female | 853 | 0,325 | | | | |
| *Sexual identity* | | | | | | |
| Gay | 767 | 0,293 | | | | |
| Lesbian | 601 | 0,229 | | | | |
| Bisexual | 411 | 0,157 | | | | |
| Transfemenine | 770 | 0,294 | | | | |
| Transmasculine | 29 | 0,011 | | | | |
| Transexual | 40 | 0,015 | | | | |
| *Marital status* | | | | | | |
| Married | 63 | 0,024 | | | | |
| Union | 433 | 0,165 | | | | |
| Separated | 33 | 0,013 | | | | |
| Divorced | 24 | 0,009 | | | | |
| Widow(er) | 16 | 0,006 | | | | |
| Single | 2009 | 0,767 | | | | |
| Civil union | 33 | 0,013 | | | | |
| *Employment relationship* | | | | | | |
| Government employee | 169 | 0,064 | | | | |
| Private employee | 1316 | 0,502 | | | | |
| Laborer | 30 | 0,011 | | | | |
| Patron | 215 | 0,082 | | | | |
| Buisiness partner | 59 | 0,023 | | | | |
| Independent | 376 | 0,143 | | | | |
| Domestic employee | 20 | 0,008 | | | | |
| None | 21 | 0,008 | | | | |
| *Member of a LGBT organization…* | | | | | | |
| Yes | 697 | 0,266 | | | | |
| No | 1921 | 0,733 | | | | |

**Note:** The third and fourth columns show the mean and standard deviation of each variable, respectively. The frequency of observations is reported for binary variables in the second column while the minimum and maximum values are reported for continuous variables in the fifth and sixth columns. There are 2,621 observations in the sample.

**Table 2.** OLS estimates of the entire sample

| | Independent variable is the well–being index | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Discrimination | –0.970*** | | –0.959*** | | –0.967*** | |
| | (0.030) | | (0.031) | | (0.030) | |
| Discrimination (family) | | –0.629*** | | –0.586*** | | –0.539*** |
| | | (0.033) | | (0.035) | | (0.034) |
| Discrimination (social) | | –0.334*** | | –0.367*** | | –0.425*** |
| | | (0.034) | | (0.036) | | (0.035) |
| log(Monthly Income) | | | 0,013 | 0,015 | 0,006 | 0,007 |
| | | | (0.008) | (0.008) | (0.008) | (0.008) |
| Age | | | –0.001 | –0.001 | 0.000 | 0.000 |
| | | | (0.001) | (0.001) | (0.001) | (0.001) |
| Has kids | | | 0,013 | 0,009 | 0,013 | 0,011 |
| | | | (0.017) | (0.017) | (0.016) | (0.016) |
| Born woman | | | 0.052*** | 0.046*** | 0.046*** | 0.043*** |
| | | | (0.012) | (0.012) | (0.011) | (0.012) |
| Constant | 1.079*** | 1.079*** | 0.990*** | 0.978*** | 0.866*** | 0.864*** |
| | (0.101) | (0.101) | (0.113) | (0.113) | (0.110) | (0.110) |
| Sexual identity dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Province dummies | | | | | Yes | Yes |
| Observations | 2194 | 2194 | 2100 | 2100 | 2100 | 2100 |
| R–squared | 0,344 | 0,350 | 0,352 | 0,354 | 0,415 | 0,416 |
| p > F | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |

**Note:** *** p<0.01, ** p<0.05, * p<0.1. Specifications [3] through [6] also control for sexual identity, marital status, employment relationship and instruction/education. Although not shown, dummy variables for all these covariates are not significant across when included. This is captured in the fact that the R-squared remains virtually unchanged across columns [1] and [4]. Standard errors are in parentheses.

**Table 3.** OLS regressions for subsamples

| | Independent variable is the well-being index | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Base sample | | By membership | | | | By sexual identity | | | |
| | | | Members | | Non-members | | Gays, Lesbians, Bisexuals | | Trans | |
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] |
| Discrimination | –0.971*** | | –0.938*** | | –0.985*** | | –1.029*** | | –0.793*** | |
| | (0.031) | | (0.054) | | (0.038) | | (0.041) | | (0.048) | |
| Discrimination (family) | | –0.541*** | | –0.472*** | | –0.558*** | | –0.581*** | | –0.375*** |
| | | (0.034) | | (0.062) | | (0.040) | | (0.044) | | (0.054) |
| Discrimination (social circle) | | –0.428*** | | –0.466*** | | –0.421*** | | –0.442** | | –0.414*** |
| | | (0.035) | | (0.059) | | (0.044) | | (0.048) | | (0.049) |
| log(monthly income) | 0,005 | 0,005 | 0,013 | 0,013 | 0,000 | 0,001 | 0,002 | 0,003 | 0,003 | 0,003 |
| | (0.008) | (0.008) | (0.016) | (0.016) | (0.009) | (0.009) | (0.009) | (0.009) | (0.014) | (0.014) |
| Age | 0,000 | 0,000 | 0,001 | 0,001 | 0,000 | 0,000 | 0,001 | 0,001 | –0.001 | –0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Has kids | 0,015 | 0,014 | –0.003 | –0.002 | 0,017 | 0,016 | 0,023 | 0,021 | 0,005 | 0,007 |
| | (0.016) | (0.016) | (0.033) | (0.033) | (0.019) | (0.019) | (0.018) | (0.018) | (0.037) | (0.037) |
| Born woman | 0.064*** | 0.062*** | 0.123*** | 0.124*** | 0.052** | 0.051** | 0.059*** | 0.058*** | –0.141 | –0.139 |
| | (0.024) | (0.024) | (0.07) | (0.071) | (0.026) | (0.026) | (0.025) | (0.025) | (0.203) | (0.203) |
| Constant | 0.926*** | 0.923*** | 0.769*** | 0.769*** | 1.018*** | 1.011*** | 1.053*** | 1.043*** | 0.793*** | 0.787*** |
| | (0.065) | (0.065) | (0.133) | (0.133) | (0.077) | (0.077) | (0.082) | (0.083) | (0.115) | (0.116) |
| Observations | 2107 | 2107 | 612 | 612 | 1497 | 1497 | 1331 | 1331 | 776 | 776 |
| R squared | 0,411 | 0,412 | 0,462 | 0,462 | 0,404 | 0,404 | 0,374 | 0,374 | 0,519 | 0,520 |
| $p > F$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |

**Note:** OLS estimates of specification [I] for subsamples of LGBT individuals. Columns [3]-[6] contain the estimates for members and non-members of LGBT organizations and Columns [7]-[10] contain the estimates for different sexual identities. All specifications computed control for location [province dummies], marital status, employment relationship, and instruction/education and sexual identity. Standard errors are in parentheses.

**Table 4.**

| | [1] Well Being index | [2] Discrimination P. index | [3] Family D. P. index | [4] Social D. P. index | [5] log monthly income | [6] Kids | [7] Membership |
|---|---|---|---|---|---|---|---|
| Born on or after 1980 | 0,004 | –0.007 | –0.014 | 0,000 | –0.121*** | –0.472*** | –0.207*** |
| | (0.013) | (0.007) | (0.008) | (0.008) | (0.03) | (0.092) | (0.069) |
| R-sq. | 0,129 | 0,174 | 0,130 | 0,209 | 0,207 | 0,260 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1981 | 0,000 | –0.01 | –0.016* | –0.004 | –0.138*** | –0.464*** | –0.218*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.029) | (0.091) | (0.067) |
| R-sq. | 0,129 | 0,175 | 0,130 | 0,209 | 0,210 | 0,260 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1982 | 0,016 | –0.012* | –0.018** | –0.006 | –0.157*** | –0.398*** | –0.203*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.029) | (0.09) | (0.066) |
| R-sq. | 0,130 | 0,175 | 0,131 | 0,209 | 0,213 | 0,256 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1983 | 0,014 | –0.012* | –0.017** | –0.007 | –0.173*** | –0.506*** | –0.216*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.028) | (0.09) | (0.065) |
| R-sq. | 0,130 | 0,175 | 0,130 | 0,209 | 0,215 | 0,264 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1984 | 0,013 | –0.012* | –0.019** | –0.003 | –0.19*** | –0.541*** | –0.221*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.028) | (0.091) | (0.065) |
| R-sq. | 0,129 | 0,175 | 0,131 | 0,209 | 0,219 | 0,267 | 0,153 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1985 | 0,011 | –0.01 | –0.019** | 0,000 | –0.211*** | –0.591*** | –0.194*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.027) | (0.092) | (0.064) |
| R-sq. | 0,129 | 0,175 | 0,131 | 0,209 | 0,223 | 0,271 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1986 | 0,008 | –0.01 | –0.021*** | 0,001 | –0.203*** | –0.586*** | –0.161** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.028) | (0.094) | (0.065) |
| R-sq. | 0,129 | 0,175 | 0,131 | 0,209 | 0,221 | 0,270 | 0,150 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1987 | 0,004 | –0.01 | –0.022*** | 0,002 | –0.201*** | –0.515*** | –0.174*** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.028) | (0.094) | (0.066) |
| R-sq. | 0,129 | 0,175 | 0,132 | 0,209 | 0,221 | 0,264 | 0,151 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1988 | 0,010 | –0.013* | –0.022*** | –0.002 | –0.212*** | –0.441*** | –0.136** |
| | (0.012) | (0.007) | (0.008) | (0.008) | (0.028) | (0.096) | (0.068) |
| R-sq. | 0,129 | 0,175 | 0,132 | 0,209 | 0,222 | 0,258 | 0,150 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1989 | 0,020 | –0.018** | –0.026*** | –0.008 | –0.25*** | –0.522*** | –0.124* |
| | (0.013) | (0.007) | (0.008) | (0.008) | (0.029) | (0.105) | (0.071) |
| R-sq. | 0,130 | 0,176 | 0,133 | 0,210 | 0,228 | 0,261 | 0,149 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1990 | 0,022 | –0.023*** | –0.031*** | –0.013 | –0.262*** | –0.494*** | –0.172** |
| | (0.013) | (0.008) | (0.009) | (0.009) | (0.031) | (0.112) | (0.076) |
| R-sq. | 0,130 | 0,177 | 0,134 | 0,210 | 0,227 | 0,257 | 0,150 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1991 | 0,019 | –0.027*** | –0.033*** | –0.021** | –0.305*** | –0.476*** | –0.307*** |
| | (0.015) | (0.009) | (0.01) | (0.009) | (0.034) | (0.123) | (0.087) |
| R-sq. | 0,130 | 0,178 | 0,133 | 0,211 | 0,230 | 0,254 | 0,153 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1992 | 0,027 | –0.033*** | –0.041*** | –0.023** | –0.361*** | –0.476*** | –0.343*** |
| | (0.017) | (0.01) | (0.012) | (0.011) | (0.04) | (0.149) | (0.105) |
| R-sq. | 0,130 | 0,178 | 0,134 | 0,211 | 0,231 | 0,251 | 0,152 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1993 | 0,028 | –0.033*** | –0.038*** | –0.028** | –0.407*** | –0.509*** | –0.313** |
| | (0.02) | (0.012) | (0.014) | (0.013) | (0.048) | (0.186) | (0.125) |
| R-sq. | 0,130 | 0,177 | 0,132 | 0,211 | 0,228 | 0,249 | 0,151 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1994 | 0,020 | –0.035** | –0.037** | –0.033** | –0.368*** | –0.474** | –0.278* |
| | (0.026) | (0.015) | (0.017) | (0.017) | (0.062) | (0.238) | (0.163) |
| R-sq. | 0,129 | 0,176 | 0,130 | 0,211 | 0,214 | 0,246 | 0,149 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Born on or after 1995 | 0,047 | –0.063*** | –0.049** | –0.078*** | –0.49*** | –0.472 | –0.616** |
| | (0.036) | (0.021) | (0.024) | (0.023) | (0.087) | (0.322) | (0.27) |
| R-sq. | 0,130 | 0,178 | 0,130 | 0,213 | 0,213 | 0,245 | 0,150 |
| $p > F$ or $p > X$ | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| $N$ = | 2110 | 2110 | 2110 | 2110 | 2141 | 2187 | 2197 |

**Note:** Estimates of equations [III] and [IV] for varying age thresholds. Specifications [1] through [4] all control for income, children, membership to an organization, sex at birth, province, sexual identity, marital status, and occupation. Columns [6] and [7] are probit regressions, and the reported measure of fit is the pseudo-R squared. Columns [5] through [7] all control for province, sexual identity, marital status, and occupation. Standard errors are in parentheses.