Online Appendix:
Jia and Persson, Individual vs. Social Motives in Identity Choice

Contents

A Additional Results on the Background

A.1 Individual-level Evidence for F1 and F2

The two facts F1 and F2 in Figure 1 also hold at the individual level. Below, the two tables report the estimates with different sets of controls.

(a) Fact F1: HM-Families versus MH-Families

	(1)	(2)	(3)	(4)
	following mother's ethnicity = 0/1			
HM-Marriage	0.475***	0.447***	0.448***	0.449***
	(0.028)	(0.028)	(0.028)	(0.028)
Prefecture FE		Y	Y	Y
Birth Year FE			Y	Y
Provincial Trends				Y
Observations	235,930	235,930	235,930	235,930
R-squared	0.260	0.370	0.371	0.382

(b) Fact F2: Ethnicity of Children by Cohorts

	(1)	(2)	(3)	(4)	(5)	(6)
	following mother's ethnicity = 0/1					
	HM-Marriage			MH-Marriage		
Born 1975-79	-0.002	0.017***	0.003	0.004*	0.002	-0.008***
	(0.009)	(0.005)	(0.006)	(0.002)	(0.002)	(0.003)
Born 1980-84	0.040**	0.048***	0.020**	0.016***	0.015***	-0.005
	(0.015)	(0.008)	(0.010)	(0.003)	(0.003)	(0.005)
Born 1985-90	0.086***	0.089***	0.048***	0.024***	0.020***	-0.010
	(0.017)	(0.011)	(0.013)	(0.004)	(0.004)	(0.007)
Born 1990+	0.108***	0.109***	0.047***	0.059***	0.047***	0.003
	(0.024)	(0.015)	(0.018)	(0.006)	(0.005)	(0.009)
Prefecture FE		Y	Y		Y	Y
Provincial Trends			Y			Y
Observations	124,940	124,940	124,940	110,020	110,020	110,020
R-squared	0.008	0.272	0.277	0.007	0.082	0.086

Notes: Provincial trends indicate provincial-birth year linear trends. Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

Similar to the aggregate pattern, the propensity of breaking the norm of following father's ethnicity is much higher in Han-minority families at the individual level. Column (1) in Table (a) compares the probability without any controls. Columns (2) and (3) present the results after including prefecture fixed effects and birth year fixed effects. Column (4) further allows for provincial-specific trends. The estimates are very similar to those in column (1).

Table (b) presents estimation results for F2 at the individual level, using those born in 1970-74 as the reference group. Columns (1)-(3) show the results for Han-minority families and columns (4)-(6) for minority-Han families. Again, these results show the increase in the propensity of breaking the norm after 1980.

A.2 Anecdotal Evidence on the Benefits and Costs of a Minority Child

The discussion in Example 1 below comes from http://www.babytree.com/ask/detail/3690549, which shows that parents are thinking about both social motives and ethnic policies (especially the option of having more children for their child if they choose minority for their child).

The discussion in Example 2 comes from http://jzb.com/bbs/thread-335421-1-1.html?action=printable, which shows that both honor and stigma are discussed in making the ethnic choices for the children.

(a) Ethnic Policies, Social Motives: Example 1

(b) Ethnic Policies, Social Motives: Example 2

作者: 中二门　时间: 2010-5-18 13:17
标题: 我为孩子选择了汉族，放弃了少数民族
前一阵去给孩子办户口，我是汉族，孩子她妈是少数民族，我对警察说孩子入汉族。
警察大姐好好把我教育了一番，说中考的时候少一分就多一操场人，她家孩子要是有6分，稳上四中了，说要对孩子负责。
最后我还是坚持入了汉族。我是想孩子成长过程中要靠自己的实力，而不是靠特权和特殊的照顾。我可以花钱让她去上好的培训班，也可以给她辅导，而不是直接把分给她。希望孩子长大后能理解她的父母。

Zhongermen: "I went to register the birth of my child a while ago. I am a Han man and my wife is a minority. I told the police that I want my child to be a Han. The police kindly suggested that I should choose minority for the child. She said that one score lower implies an extra playground of competitors in the high-school entrance exam and that I should be responsible for my child's future. But I insisted on choosing Han in the end. I hope that my child's future will reply on his own ability, not ethnic favors."

作者: fh2315　时间: 2010-5-18 13:27
我觉得无所谓
如果没有什么特别的信仰的话。

fh2315: "Not a big deal if the minority is not religious."

作者: claetitia　时间: 2010-5-18 15:49
告诉你吧加分什么的你要是瞧不上的话
至少少数民族还可以生2个孩子

claetia: "Well, if you despise the ethnic favor for extra scores, minorities can at least have more children!"

作者: 麻爪　时间: 2010-5-19 00:04
我是少数民族，女儿随我，原因很简单，姓随爸爸，民族就随妈妈吧，虽然是人数多的少数民族但我还是以自己的民族为骄傲的，所以希望女儿也是，与加分无关

Magua: "I am a minority and my child follows my ethnicity. The reason is simple…Even though I belong to a minority group whose population size is large, I am proud of my ethnicity. So I hope that my child is also [proud of my ethnicity]. This has nothing to do with extra scores.

A.3 Descriptive Patterns of the Four Types of Marriages

The following table describes the marriage patterns among all married couples in the four censuses (1982, 1990, 2000 and 2005). This sample includes all the couples in the data, while our analysis on mixed marriages focuses on those with children born between 1970 and 2005. Among married couples that appear in our four censuses, 17% of minority men marry Han women, while 18% of minority women marry Han men.

Differences across Marriages

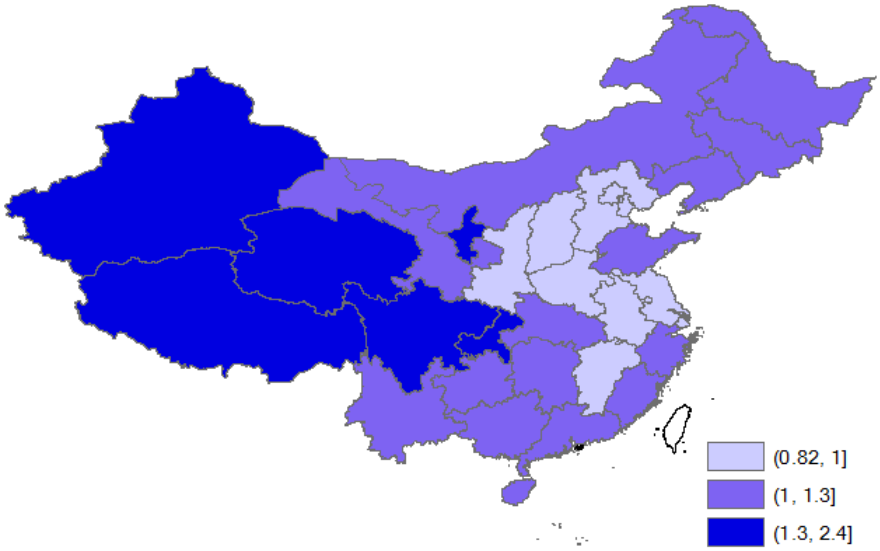
	HH	MM	HM	MH	
#Couples	6,436,486	417,089	90,704	81,570	
Share in total marriages	91.60%	5.90%	1.30%	1.20%	
HM Share for a minority woman					1.3/(1.3+5.9)=18%
MH Share or a minority man					1.2/(1.2+5.9)=17%
Husband Edu-Wife Edu	0.27	0.26	0.21	0.23	
Husband Age-Wife Age	2.41	2.72	2.8	2.48	

B Additional Results on the Measurement

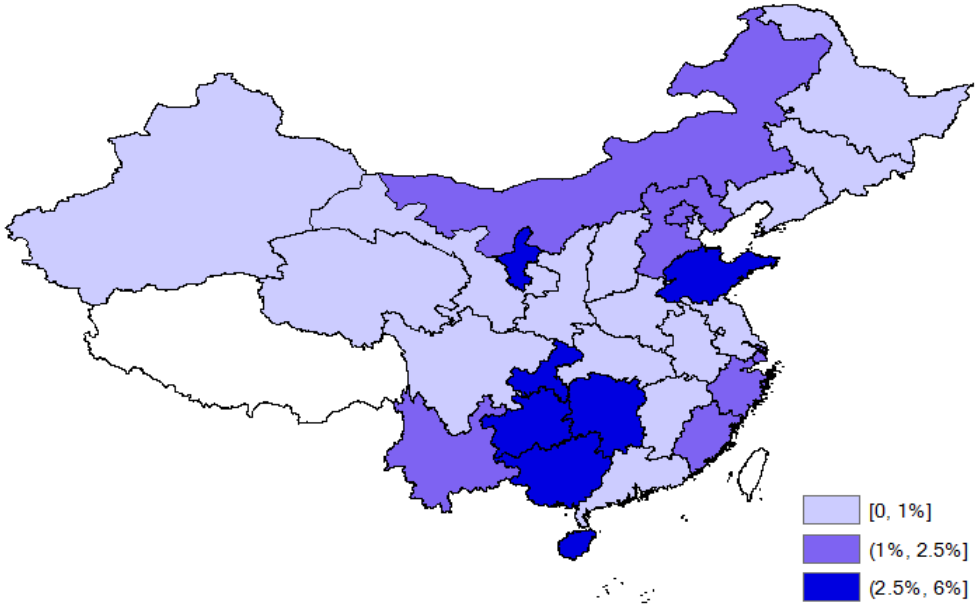
B.1 Spatial Variation in Ethnic Policies

The two figures below present the cross-sectional variation in our measures of ethnic policies: extra fertility and extra scores. They show that the two types of benefits are not closely correlated at the cross-sectional level, with an insignificant correlational coefficient of 0.06. The data for extra scores in Tibet are not available.

(a) Total fertility ratio between Minority and Han women born in 1955-59



(b) Extra scores (relative to provincial cutoff) for minorities in 2000



B.2 Correlation b/w the Norms and Other Prefecture Characteristics

The following table reports the correlations between our measure of norms and other prefecture characteristics. As mentioned in the main text, it is worthwhile pointing out that correlation between our measure of social norms and the share of minority population is weakly positive. This correlation rejects a scarcity effect, whereby children are less likely to be minority in regions with a higher share of minority population because a more or less fixed set of material benefits get diluted by population.

Correlation b/w the Norms and Other Prefecture Characteristics

	(1)	(2)
	Share of children following motherâs ethnicity in the 1970-74 cohort	
Minority Population Share 1982	0.004***	0.002
	(0.001)	(0.001)
Share of Pop. with high school + 1982	0.934***	0.854**
	(0.340)	(0.361)
Borderland Prefecture	-0.130***	-0.088**
	(0.042)	(0.044)
#children for a minority 1982 (women aged 40+)	0.018	-0.003
	(0.018)	(0.020)
Province fixed effects		Y
Observations	261	261
R-squared	0.110	0.415

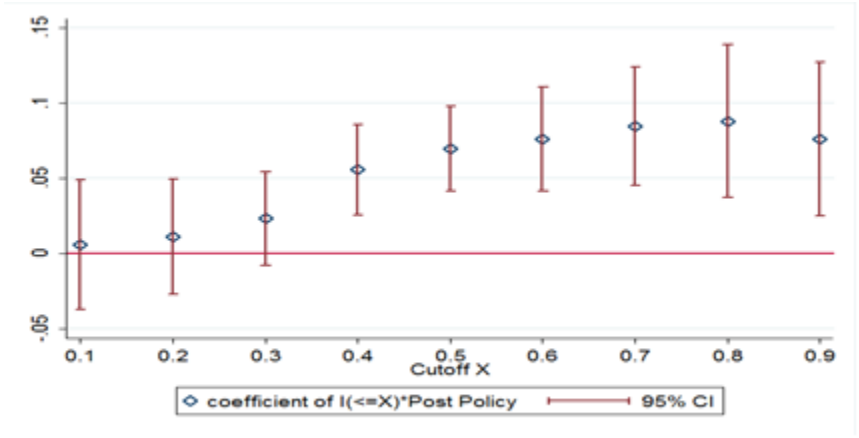
Notes: Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

C Additional Results on Robustness Checks

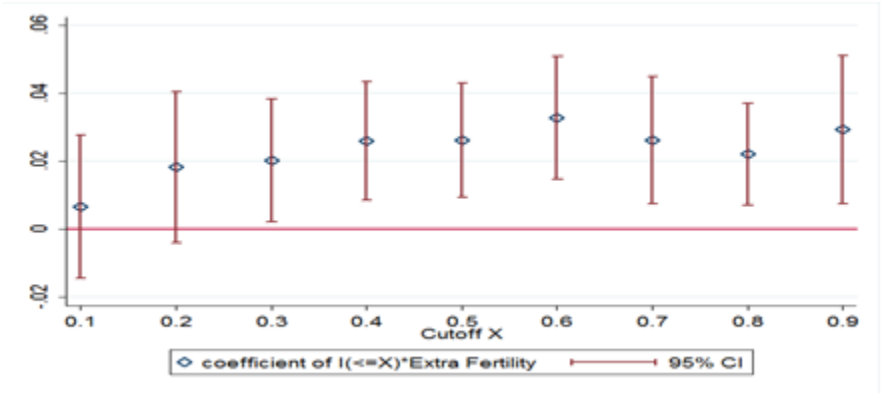
C.1 Varying Cutoff Values

This figure plots the results for testing prediction P1 while using different cutoff values for the share of minority children, ranging from 0.1 to 0.9. The econometric specification is the same as that in column (6) of Table 2A. The diamonds indicate the estimates and the bars through each dot indicates 95% confidence intervals.

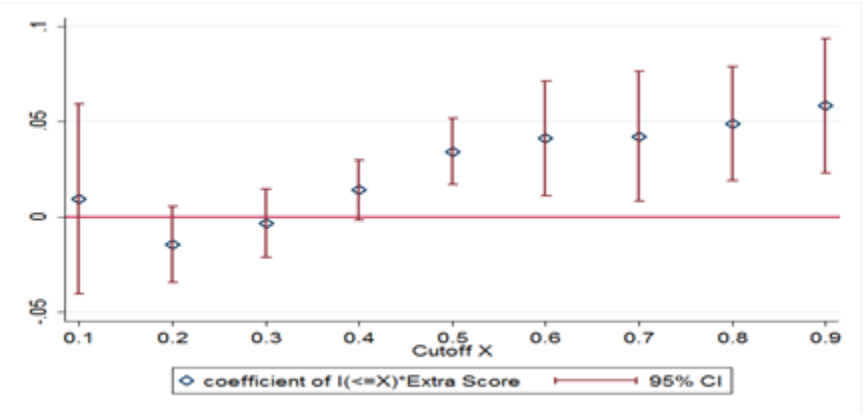
(a) Coefficient of I(≤X)*b(Post Policy)



(a) Coefficient of I(≤X)*b(Extra Fertility)



(a) Coefficient of I(≤X)*b(Extra Score)



C.2 Dealing with Migration

Our baseline estimation is robust to considering migration. Columns (1)-(6) of the following table present the results after excluding all data after the 2000 census as well as individuals whose birth county and residency county are different. Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Columns (7)-(9) show no similar interaction effect on migration as an outcome. Note that columns (1)-(6) focus on Han-Minority families while columns (7)-(9) consider all types of families, which show that migration is not correlated with the ethnic policies.

Results Robust to Considering Migration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Excluding migrants: following motherâs ethnicity=0/1						Migration in 2000 (0/1)		
I(≤)*b(Post Policy)		0.068***					0.006		
		(0.014)					(0.006)		
b(Post Policy)	0.078***								
	(0.011)								
I(≤0.5)*b(Extra Fertility)				0.023***				-0.001	
				(0.008)				(0.003)	
b(Extra Fertility)			0.033***						
			(0.005)						
I(≤)*b(Extra Score)						0.032***			0.003
						(0.009)			(0.002)
b(Extra Score)					0.043***				
					(0.007)				
Prefecture FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Wife Ethnicity FE		Y		Y		Y			
Birth Year FE		Y		Y		Y			
Controls*b		Y		Y		Y			
Prov. FE*Year FE		Y		Y		Y			
Observations	113,343	101,546	102,216	92,012	115,796	103,999	89,741	71,271	93,287
R-squared	0.285	0.344	0.284	0.348	0.278	0.339	0.064	0.064	0.070

Notes: Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

C.3 Checking Pre-trends

Using the period 1-3 years before the policy as the reference group, we examine the dynamic comparisons in the following table. For the periods before the policy, there are no systematic pre-trends. The results in columns (2) are visualized in Figures 5 in the main text.

No Systematic Pre-trends

	(1)	(2)
	following motherâs ethnicity = 0/1	
I(≤0.5)*7+ years Pre Policy	-0.026*	-0.015
	(0.014)	(0.014)
I(≤0.5)*4-6 years Pre Policy	0.003	0.012
	(0.013)	(0.013)
I(≤0.5)*0-2 years Post Policy	0.028**	0.043***
	(0.012)	(0.015)
I(≤0.5)*3-5 years Post Policy	0.044**	0.051***
	(0.018)	(0.016)
I(≤0.5)*6+ years Post Policy	0.086***	0.093***
	(0.026)	(0.017)
Prefecture FE	Y	Y
Wife Ethnicity FE		Y
Birth Year FE		Y
Controls*Post Policy		Y
Province FE*Year FE		Y
Observations	121,908	108,914
R-squared	0.279	0.322

Notes: Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

C.4 Dynamic Extension of the Model

One can extend the model to get a dynamic adjustment to a new steady state after a one time shock, which deliver a prediction consistent with the pattern discussed in C.3 above.

Introducing dynamics Suppose that the social-reputation motives of the parents in a given birth cohort (where a cohort could, e.g., be defined as a year) are tied to the behavior of the parents in the previous birth cohort. Specifically, the cutoff entering the gain in social reputation for Han-minority couples with birth cohort t is tied to the behavior of the Han-minority couples with birth cohort $t-1$. One rationale for this assumption could be that the behavior of other couples is only observed with a period's lag. This assumption is similar to the one made by Besley, Jensen and Persson (2015) in their analysis of tax evasion in a dynamic version of the Benabou-Tirole model.

Drawing on their results, equation (3) in the main text still defines a steady-state value for ε^*_H. As long as other parameters, b and e(H) are constant, the equilibrium cutoff (and therefore the share of children following mother's ethnicity) adjusts gradually towards the new steady state according to the non-linear difference equation:

$$b - e(H) - \varepsilon^*_{H,t} = \mu\Delta(\varepsilon^*_{H,t-1})$$

The steady state is stable under the assumption we have already made that $1 + \mu\frac{d\Delta(\varepsilon^*_H(b,e,\mu))}{d\varepsilon^*} \geq 0$. This guarantees the root on non-linear difference equation above is less than 1 in absolute value.

A Shift in b Consider now an upward shift in benefits b that occurs in period 1. Consider two peer groups L and H with low and high initial shares $\varepsilon^{*L}_{H,0} < \varepsilon^{*H}_{H,0}$ of children following mother's ethnicity. In the dynamic setting, the steady-state shift in the minority share is going to be larger in group L than in group H, in the same way as in the static model. But the impact effect of the shift in b in period 1 is the same in the two groups, as the behavior by the previous cohort $\varepsilon^{*L}_{H,0}$ is given at the time of the shock. However, the cutoff starts changing from birth cohort 1 and onwards. Because the share of children following the mother's ethnicity in the group L is adjusting more than the one of group H, its share will become progressively higher as we go forward in time from period 2. This is precisely what we see in Figure 5 in the main text and in the corresponding regression estimates presented in C.3 above.

D Prediction on Material Incentives × Intrinsic Costs

An intuitive prediction of our model is that higher intrinsic costs weaken the effect of material incentives. Here, we provide supportive evidence of this hypothesis.

D.1 Measurement

We use two measures to proxy intrinsic costs. Our first measure is whether the child is a son or a daughter. Given that China is a typical patriarchal society, we assume that the intrinsic costs of having a child with different ethnicity than the father are higher for a son than a daughter. This measure, however, may capture heterogeneity in material benefits. In particular, ethnic benefits may be more important for sons who are perceived to play a more important role in providing old-age support and enjoy more advantages in education. For instance, in the administrative data for 2000, boys accounted for 57 percent of the college entrance exam takers and 55.5 percent of those accepted by colleges. Note that this channel alone would predict an opposite pattern (i.e., sons are more likely to be minorities for given ethnic policies). This observation matters for interpreting our estimation results below.

Our second measure of intrinsic costs is whether the spouse belongs to a religious minority group. The idea is that the cost of giving the child the mother's ethnicity may be higher, if that ethnicity is practicing religion (recall the online dialogue in A.2). To clarify, this is a measure at the ethnic-group rather than the individual level. We define a wife as religious if she belongs to one of the 18 minority groups that practice Islam or Tibetan Buddhism. Men who marry religious women constitute a selected sample, but our question concerns how a religious wife shapes the effect of material benefits on ethnic choice for children, rather than the effect of a religious wife itself. Table 1 shows that the share of Han-minority mixed families with a religious wife is about 19 percent.

D.2 Empirical Results

We thus examine whether the impact of material benefits on ethnic choices is smaller for sons and for couples with religious wives. The estimation results are presented in the table of this subsection. The effect of fertility-related material benefits are indeed smaller when the child is a son. The estimates for our three measures of material benefits are displayed in columns (1)-(6). Columns (1), (3) and (5) report the results with prefecture fixed effects. Columns (2), (4) and (6) include additional fixed effects and controls. Having a son decreases the impact of a 1σ increase in extra fertility by 0.003, around 10% of the mean effect. However, we find no strong pattern related to education. A possible reason is related to the heterogeneous

material benefits in education for sons mentioned above, which would provide a channel working toward the opposite direction.

Having a religious wife also cuts the effect of material benefits. Columns (7)-(12) show the results on the effect on Han men with religious minority wives. Having a religious wife decreases the impact of a 1σ increase in extra fertility by 0.01, around one third of the mean effect.

Material Benefits×Intrinsic Costs on the Probability of Following Mother's Ethnicity

	(1)	(2)	(3)	(4)	(5)	(6)
b(Post Policy)*Son	-0.017***	-0.008				
	(0.005)	(0.005)				
b(Extra Fertility)*Son			-0.004***	-0.003**		
			(0.001)	(0.002)		
b(Extra Score)*Son					0.001	0.002
					(0.002)	(0.002)
Son	-0.000	-0.009**	-0.007**	-0.011***	-0.011***	-0.015***
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
b	0.086***	-0.101	0.034***	-0.007	0.033***	-0.125***
	(0.011)	(0.075)	(0.008)	(0.038)	(0.006)	(0.031)
	(7)	(8)	(9)	(10)	(11)	(12)
b(Post Policy)*Religious Wife	-0.044***	-0.026**				
	(0.015)	(0.013)				
b(Extra Fertility)* Relig. Wife			-0.016***	-0.011***		
			(0.004)	(0.004)		
b(Extra Score)*Relig. Wife					-0.027***	-0.047***
					(0.008)	(0.008)
Religious Wife	0.204	0.127	0.072***	0.129	0.071***	0.130
	(0.206)	(0.283)	(0.013)	(0.276)	(0.013)	(0.283)
b	-0.006	-0.115	0.039***	-0.008	0.035***	-0.146***
	(0.013)	(0.073)	(0.008)	(0.039)	(0.005)	(0.029)
Prefecture FE	Y	Y	Y	Y	Y	Y
Wife Ethn. FE		Y		Y		Y
Birth Year FE		Y		Y		Y
Controls*b		Y		Y		Y
Province FE*Year FE		Y		Y		Y
Observations	122,835	109,250	108,528	97,100	122,803	109,227
R-squared	0.293	0.334	0.280	0.341	0.277	0.335

Notes: Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

Thus, these results provide supportive evidence for our model setup and also shed light on additional factors that can affect ethnic choices.

E Additional Results on Alternative Explanations

E.1 Nonlinear Utility

In our version of the Benabou-Tirole model, the preference function of couples is linear in material benefits b and intrinsic costs $e + \varepsilon$, but nonlinear in the social-reputation term $\mu E(\varepsilon \mid m)$. Suppose we got rid of the social-reputation term, but made preferences nonlinear in the individual benefits and costs. Perhaps this alternative setting could reproduce the prediction that the effect on the share of children following mother's ethnicity of a change in benefits is larger when the share is smaller. In this subsection, we show that nonlinear utility actually contradicts Prediction P1.

An alternative model Assume that the utility function of a Han-minority couple is

$$u^H = v + m[u(b) - c(e + \varepsilon)] \ , \tag{1}$$

where u and c are nonlinear functions. The natural assumption is that the utility in material benefits u is concave, with decreasing marginal benefits ($u' > 0$ and $u'' < 0$) and the intrinsic cost c is convex, with increasing marginal costs in the type ($c' > 0$ and $c'' > 0$).[1] The indifference condition for having a child following mother's ethnicity now becomes

$$u(b) - c(e + \varepsilon^*) = 0 \ ,$$

which defines a cutoff value $\varepsilon^*(b, e)$ as an increasing function of b and a decreasing function of e – at higher average intrinsic costs the share of minority children is lower.

Comparative statics Straightforward comparative statics imply

$$\frac{\partial \varepsilon^*}{\partial b} = \frac{u'(b)}{c'(e + \varepsilon^*)} > 0 \ .$$

Suppose ε^* is lower because e is higher. How does this alter the effect of material benefits? The answer is given by:

$$\frac{\partial^2 \varepsilon^*}{\partial b \partial e} = -\frac{c''(e + \varepsilon^*)u'(b)}{(c'(e + \varepsilon^*))^2} < 0 \ .$$

That is to say, at lower ε^* (higher e) – and a lower share of minority children – the effect of b is lower. This contradicts our empirical results from the tests of P1. Thus, the alternative

[1] The results of this section largely hold up also in the case where the preferences are linear in the intrinsic costs and in the type.

model without a social reputation term can help us understand some aspects of the data (e.g., the effect of b), but does not offer an alternative explanation for our central result.

E.2 Alternative Ways of Modeling Social Interactions

How important is the model's assumed functional form for social reputation, namely that people decide on the identity choice for their children to signal their *expected type*, given how everybody else in the peer group behaves? One could think of other ways of modelling social reputation. The most natural alternative is to assume that the honor of a child with father's ethnicity and the stigma of a child with mother's ethnicity are given by the *shares* of norm-followers and norm-breakers in the peer group. Under that alternative relative-numbers assumption, we would write the gain in social reputation as

$$\Delta(\varepsilon^*) = h(1 - G(\varepsilon^*)) - sG(\varepsilon^*) = h - (h + s)G(\varepsilon^*) \ ,$$

where h and s are some positive constants.

In this case, we get $\frac{d\Delta}{d\varepsilon^*} = -(h + s)g(\varepsilon^*)$, such that choices would always be strategic complements, with maximal complementarity at the single peak of the p.d.f. for ε. This would deliver quite different predictions than our model, predictions that would not be supported by the data. In particular, we would not predict a larger effect of b on G, when ε^* is low and the share of kids following mother's ethnicity $G(\varepsilon^*)$ is high, unless we made very specific and strong assumptions about (unobservable) distribution G.

The attractiveness of our social-reputation model defined over expected types is that it delivers non-trivial and testable predictions about the interaction between individual and social motives without overly strong functional-form assumptions.

E.3 Bargaining Power: Model and Empirics

Bargaining is an alternative mechanism behind some of the patterns in the data. Consider facts F1 and F2 in Figure 1. Assume that women's bargaining power have gone up over time so that a higher number of Han-minority couples chose the mother's minority ethnicity for their children. One may further argue that this mechanism may have become more powerful post ethnic policies, due to social and economic factors, like unbalanced and increasing sex ratios – more men per woman – among the Han. In this subsection, we show that a bargaining mechanism cannot explain our main finding on Prediction P1, both in the theory and in the data.

A simple bargaining model Let us sketch a simple bargaining model, without any social reputations. Suppose the Han man has a similar utility function as in (1), namely:

$$u^H = v + m[u(b) - (e + \varepsilon)] \ .$$

The minority woman has an analogous utility function:

$$u^M = v + m[u(b) + (e + \varepsilon)] \ ,$$

except that the intrinsic cost for the Han man of a child with minority ethnicity is an intrinsic benefit for the minority woman. In these expressions for u^H and u^M, ε is an idiosyncratic couple-specific shock to the intrinsic cost drawn after the couple is formed.[2]. We assume that these utility functions are linear in the intrinsic cost since this allows aggregation. An efficient bargaining solution maximizes

$$(1 - \alpha(\mathbf{z}))u^H + \alpha(\mathbf{z})u^M = v + m[u(b) - (1 - 2\alpha(\mathbf{z}))(e + \varepsilon)] \ ,$$

where $\alpha(\mathbf{z}) < 0.5$ is the relative bargaining power of the minority woman and $\mathbf{z}$ a vector of variables that affects it. The indifference condition for a minority child becomes:

$$u(b) - (1 - 2\alpha(\mathbf{z}))(e + \varepsilon^*) = 0 \ .$$

Predictions The effect of material benefits on the share of Han-minority couples with minority children is proportional to:

$$\frac{\partial \varepsilon^*}{\partial b} = \frac{u'(b)}{(1 - 2\alpha(\mathbf{z}))} > 0 \ .$$

The effect of *changing bargaining power* for minority women can be determined from:

$$\frac{\partial \varepsilon^*}{\partial \alpha(\mathbf{z})} = \frac{2(e + \varepsilon^*)}{(1 - 2\alpha(\mathbf{z}))} > 0 \ .$$

Intuitively, higher bargaining power of the minority wife – a rise in $\alpha(\mathbf{z})$ – raises ε^* and the share of minority children. An alternative explanation for F2 – or a complementary explanation to the increase in b – is thus that the bargaining power of minority women in mixed marriages went up over time. However, to explain our results of testing P1 in Table 2, $\alpha(\mathbf{z})$ would not only have to rise over time, but also have to rise by more in peer groups

[2]Having two independent shocks ε^H and ε^M revealed before the marriage would make the analysis more difficult. To say something useful about this case, we would need a marriage matching model.

with a low ε^*.

In the remainder of this subsection, we check this possibility for three plausible proxies for $\mathbf{z}$, the determinants of minority women's bargaining power.

Education differences A proxy for one component of $\mathbf{z}$ is the education gap between husband and wife. Realistically, the spouse with higher education (and income) has more bargaining power. We calculate the gap based on the 1-4 levels of education (used as control variables in the baseline specification). The education difference between husbands and wives is around 0.2, such that the average minority woman marries a Han man with more education. Moreover, column (1) of the table below shows that the education gap decreases by 0.1 after the one child policy, consistent with the idea that bargaining power of minority women went up. Thus, higher bargaining power of minority women can help explain fact F2.

But can it also explain the results in our tests of P1? To approach that question, we first use the education difference as an outcome. If this difference decreases with $I(\leq 0.5)_p \times b_{r,t}$ ($b_{r,t}$ refers to $b_{r,t}$(Post Policy) in this table), the change in minority women's bargaining power goes in the same direction as our baseline findings. However, as shown in column (2), $I(\leq 0.5)_p \times b_{r,t}$, is not significantly correlated with education differences. Thus, the data does not support the idea that education differences decrease faster after the one-child policy in peer groups where the share of minority children is initially low.

As a further check, we add the education difference – and its interaction with the share indicator $I(\leq 0.5)_p$ – to specifications similar to those underlying Table 2A. The results are presented in column (3). After controlling for education differences and its interaction with $I(\leq 0.5)_p$, the estimated interaction coefficient of $I(\leq 0.5)_p \times b_{r,t}$ is very close to that in Table 2A. Therefore, this measure of bargaining power cannot drive the interaction between individual and social motives.

Examining Bargaining Power

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	education difference		following mother's ethnicity	age difference		following mother's ethnicity	sex ratio		following mother's ethnicity	following mother's ethnicity
I(≤0.5)*b(Post Policy)		0.009	0.066***		0.369***	0.067***		0.018	0.062***	0.065***
		(0.015)	(0.015)		(0.110)	(0.015)		(0.011)	(0.014)	(0.014)
b(Post Policy)	-0.116***			-0.465***			0.022***			
	(0.006)			(0.124)			(0.009)			
I(≤0.5)* (Husb−Wife Edu.)			-0.002							-0.002
			(0.006)							(0.006)
Husband−Wife Edu.			-0.005							-0.005
			(0.004)							(0.004)
I(≤0.5)* (Husb−Wife Age)						0.003**				0.003**
						(0.001)				(0.001)
Husband−Wife Age						-0.003***				-0.003***
						(0.001)				(0.001)
I(≤0.5)* Sex Ratio									0.000	-0.002
									(0.056)	(0.055)
Sex Ratio									0.046	0.049
									(0.040)	(0.040)
Prefecture FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Wife Ethnicity FE		Y	Y		Y	Y		Y	Y	Y
Birth Year FE		Y	Y		Y	Y		Y	Y	Y
Pref. Characteristics*b		Y	Y		Y	Y		Y	Y	Y
Province FE*Year FE		Y	Y		Y	Y		Y	Y	Y
Observations	121,908	108,914	108,914	121,908	108,914	108,914	120,094	108,688	108,688	108,688
R-squared	0.036	0.047	0.326	0.066	0.076	0.326	0.373	0.404	0.326	0.291

Notes: Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

Age differences A proxy for another component of $\mathbf{z}$ is the age difference between husband and wife, where a smaller age difference presumably raises the wife's bargaining power. The average age difference between husband and wife is 2.6 years. Moreover, as shown in column (4) of the table above, the age gap decreases by 0.46 years after the one-child policy, consistent with increasing bargaining power of minority women. Thus this factor too may have contributed to the trend summarized in F2. Can it also explain the results on our tests of P1?

Column (5) estimates how age differences correlate with material benefits interacted with the initial share of minority children. We see that $I(\leq 0.5)_p \times b_{r,t}$ is positively correlated with the age gap. So if minority women's bargaining power due to age were an important factor behind the choice of identity, we should see minority children chosen less often where the initial share of children is small – the opposite to Prediction P1 in our model. Similar to the estimates for education differences, column (6) presents the results when we include the age difference between husband and wife and its interaction with the share indicator $I(\leq 0.5)_p$. Again, the magnitude of the estimated individual-social interactions is very close to those in Table 2A.

Sex ratios A third candidate to measure bargaining power is the (male to female) sex ratio in the husband's birth cohort of Han men within the same prefecture. Here it is plausible to assume that a higher sex ratio raises the bargaining power of the wife.[3] Once again, the result in column (7) is consistent with the previous findings using education and age gaps: sex ratios increase over time.

Column (8) shows that the increase is weakly larger in prefectures with a lower share of minority children, which goes in the same direction as our prediction on the effect of $I(\leq 0.5)_p \times b_{r,t}$. However, as shown in column (9), our coefficient estimate on $I(\leq 0.5)_p \times b_{r,t}$ is only marginally affected by controlling for sex ratio and its interaction with $I(\leq 0.5)_p$, while the interaction between sex ratio and $I(\leq 0.5)_p$ is insignificant. Even though the sex ratio measure of bargaining power is positively correlated with our policy variable and may help explain F2, it is unlikely to drive our baseline estimate.

Finally, column (10) presents the results when we include all three measures of bargaining power. The results using $b_{r,t}$(Extra Fertility) and $b_{r,t}$(Extra Scores) to measure material benefits are similar and are not further discussed. As the estimates show, bargaining power may help us understand F2, the increase of children following mother's ethnicity after the introduction of the one-child policy, but it cannot explain our main findings on Prediction

[3]The shortage of Han women becomes more pronounced in recent years. One implication of our findings is that mixed-couple children increase with the shortage of Han women.

P1 on the interaction between social and individual motives.

E.4 Censoring

To check for the possibility of censoring, we restrict the estimation sample to prefecture-cohorts with a share of minority children between 0.3 and 0.7. In this interval, there should be enough room for Han-minority couples in every prefecture-cohort to respond without hitting a constraint. As shown in the table below, the estimates from the restricted sample are similar to the baseline estimates from the full sample in Table 2A. In other words, upward censoring does not drive our main findings when testing Prediction P1 on individual-social interactions.

Considering the Possibility of Censoring

	(1)	(2)	(3)	(4)	(5)	(6)
	following mother's ethnicity = 0/1					
I(≤0.5)*b(Post Policy)		0.076***				
		(0.017)				
b(Post Policy)	0.108***					
	(0.021)					
I(≤0.5)*b(Extra Fertility)				0.022		
				(0.014)		
b(Extra Fertility)			0.042***			
			(0.010)			
I(≤0.5)*b(Extra Score)						0.031***
						(0.010)
b(Extra Score)					0.051***	
					(0.010)	
Prefecture FE	Y	Y	Y	Y	Y	Y
Wife Ethnicity FE		Y		Y		Y
Birth Year FE		Y		Y		Y
Controls*b		Y		Y		Y
Province FE*Year FE		Y		Y		Y
Observations	54,345	48,480	47,286	42,258	54,345	48,480
R-squared	0.093	0.195	0.084	0.200	0.088	0.195

Notes: Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.

E.5 Composition Effects

Finally, to check whether the composition of children drives our findings, we present separate results for families with a single child in columns (1)-(3) in the table below, and for those with multiple children in columns (4)-(6). As the estimates show, the results for both types

of households are similar to the baseline results in Table 2A. If anything, the pattern is slightly stronger for the single-child families. These findings imply that our baseline result on Prediction P1 are not driven by composition effects.

Considering Composition Effects

	(1)	(2)	(3)	(4)	(5)	(6)
	following mother's ethnicity = 0/1					
	Single-child Family			Multiple-children family		
I(≤0.5)*b(Post Policy)	0.074***			0.060***		
	(0.017)			(0.016)		
I(≤0.5)*b(Extra Fertility)		0.037***			0.022*	
		(0.010)			(0.011)	
I(≤0.5)*b(Extra Score)			0.062***			0.023***
			(0.019)			(0.010)
Prefecture FE	Y	Y	Y	Y	Y	Y
Wife Ethnicity FE	Y	Y	Y	Y	Y	Y
Birth Year FE	Y	Y	Y	Y	Y	Y
Controls*b	Y	Y	Y	Y	Y	Y
Province FE*Year FE	Y	Y	Y	Y	Y	Y
Observations	30,910	23,932	32,561	78,004	72,942	79,383
R-squared	0.290	0.297	0.284	0.357	0.363	0.354

Notes: Controls include couples' characteristics (education level fixed effects and 5-year birth-cohort fixed effects, for both husband and wife) and prefecture characteristics (listed in panel (d) of Table 1). Standard errors are clustered at the prefecture level. Significance: ***, 1%, **, 5%, *, 10%.