

# **The Effect of Chinese Third Judicial Interpretation of Marriage Law on the Sex Ratio at Birth**

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## Abstract

In this paper, I test the impact of Chinese 2011 Third Judicial Interpretation on the sex ratio at second birth given a female first child. Basically the Third Judicial Interpretation favors men over women. Under the circumstance of son preference and “One Child Policy”, women are more likely to adopt the sex-selective abortion, which leads to an increase in the sex ratio. Based on the data of Panel Study of Family Dynamics(PSFD) 2013 survey, I adopt a difference in difference (DID) model to analyze the effect of the policy. The results support my expectations. The Third Judicial Interpretation shows a positive impact on the sex ratio at second birth given a female first child. Also, the results suggest that the Third Judicial Interpretation affects sex ratio by benefiting the property owners.

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## Introduction

Amartya Sen, the winner of the 1998 Nobel memorial Prize in Economic Science, first noticed a significant decline in China's women population just after Deng's economic and social reforms in 1979. Sen (1992) first uses the concept "missing women" in 1992 when he discusses the skewed sex ratio in Asia and North Africa. Taking the difference between the expected population of women under a natural gender ratio at birth and the observed population of women suggests that there were 8.5 million fewer women born from 1980 to 2000 than would have been born in the absence of selective abortion and other interventions by parents preferring sons to daughters under China's One Child policy (Cai and Lavelly, 2000).

The natural gender ratio at birth is around 105 men to 100 women (World Health Organization, 2010). However, the actual gender ratio at birth can be very different. For example, in China, the gender ratio at birth was 116 women to 100 men in 2015 (World Bank, 2015). The biased gender ratio in China is mainly due to a traditional preference for sons.

Traditionally, female infants in China suffered from insufficient food and medical care, which caused an elevated mortality rate and increased the ratio of males to females in the population. Since the 1970s, people have used induced abortion to abort female fetuses, due to the rise of ultrasound technology like B-mode imaging (also known as 'type-B ultrasonic test'), which can be used to identify the gender of a fetus.

The gender ratio is even more skewed for second births in China (144 to 100 in 2016). This is because people are more likely to practice selective-abortion when they give birth to a second child because the Chinese One Child Policy places a fine on parents having their second child. In other words, the higher economic cost of second child makes son preference more obvious. The situation of the family where the first child is a son is not considered here. The first

son can satisfy the son preference to some extent and reduce the son preference in the second pregnancy (Li, 2007).

In this paper, I focus on how the Third Judicial Interpretation in 2011 affects second birth abortion and the divorce rate. Changes in marriage law can influence the within-family bargaining power of each partner. The 2011 Third Judicial Interpretation of marriage law favored males and protected the property rights of men more than those of women. For example, if one party purchases real estate before marriage, then increases in the value of the real estate that occur during the marriage are not counted as common property (Article 5) under the 2011 reform. Males benefit more from this article than females because males are more likely than females to purchase houses before marriage. It is reasonable to expect that the 2011 reform reduces the bargaining power of females, as well as their divorce option, which in turn should decrease the divorce rate. Furthermore, females will face uncompensated health costs if they agree to an abortion requested by their husband. Less protection of female property rights also makes it more difficult for females to refuse gender selective abortion if the result of their refusal is divorce by the husband<sup>1</sup>.

To analyze the 2011 marriage law reform and its effect on the abortion decision, I use a consumer choice model. In the model, the couple already has one girl. The analysis begins in the condition that the wife experiences a second pregnancy and B-mode image shows that it is still a girl. In the model, I assume that the husband decides whether to ask the wife to have an abortion.

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<sup>1</sup> What I mean here is the husband prefers son more than the wife. In other words, both husband and wife can prefer a second son, which is the usual case in China. Since the wife faces an uncompensated health cost, she will prefer a second son less. Give the bargaining power of wife increases, sex ratio at second birth could decrease (fewer sex-selective abortion). Dr. Martin rises a good question about who is pushing the abortion. It could be hard to prove that it is the husband that push the abortion. But I will make a more clear statement here if proper reference is found

The wife has the right to refuse the abortion but she will face divorce if she refuses. I investigate the second-birth gender ratio to evaluate to what extent the family changes their abortion choice. I also investigate changes in the divorce rate resulting from the policy change.

### Literature review

Ebenstein (2008) finds a clear connection between the high sex ratio (male/female) at birth and sex selection activities in China. The author compares sex ratio at birth over the period spanning 1970-2000, during which the population policy (due to the one child policy) changes. When the government tightened the restriction on the number of children one was allowed, sex ratio at birth rose significantly. Li (2007) reports that sex-selective abortion is the main source of the skewed sex ratio. The author rules out other factors like underreported women and infanticide, which only account for a small percentage of the skewed sex ratio. The author attributes the abuse of sex-selective abortion to the proliferation of ultrasound machines and cheap surgery.

One important issue in my model is the health risk relevant to abortion. Bartlett and Berg (2004) point out that death rate in abortion surgery increases as gestation lengthens (by 38% for each extra week). When it comes to sex selection, an infant takes four months to grow big enough for an accurate gender detection (from Wikipedia, need another reference here). According to Li (2007), abortion not only imposes a physical health risk but also potential psychological harm on a woman. As a result, women often seek to avoid sex-selective abortions for health reasons.

As women try to avoid abortion, divorce can be an effective threat. Manser and Brown (1980) analyze how exogenous variables change threat points, which in turn affect family

decisions in fertility, income distribution, and labor supply. According to the authors, reform in marriage law, as an exogenous variable that affects bargaining positions, can significantly affect the divorce option of women.

As noted above, reform of marriage laws has the potential to influence sex ratio at birth. In this study, I focus on the sex ratio at 'second' birth. Ebenstein (2008) reports that birth of a second child accounts for most of the missing women, which implies a high percentage of sex-selective abortion at second birth. In addition, the sex ratio at second birth is significantly higher in one child zones than in the rest of China. The relationship between the 2011 marriage law reform and skewed sex ratio could be more obvious when we study the sex ratio specifically.

Sun and Zhao (2012) study the relationship between the 2001 marriage law reform and second-child birth imbalance. The 2001 marriage law included four new articles to protect property rights of women. The authors model how a family decides on sex-selective abortion, from the perspective of the husband. Changes in the wife's divorce option affect the expected personal utility of the husband, which in turn influences the decision of whether to seek an abortion. The study provides strong evidence that the law reform affects the sex ratio at birth. Tell us what they find! Don't just say they provide evidence of a link. Your job is to inform the reader.

I add to the work of Sun and Zhao (2012), by studying the effects of the 2011 marriage law reform. In the 2011 reform, the supreme court of China released a judicial interpretation, which favors the property rights of men over women. Since the 2011 reform works in the opposite direction of the 2001 reform, we should expect a rise in the sex ratio of second birth after 2011. I test for this. In addition, I test whether the law reform causes a change in the divorce rate. Since the economy changes a lot after the 2001 marriage reform and so does the society, it may be

difficult to test the robustness of the connection between the divorce rate and the 2011 marriage law reform.

To be clear, there is no conflict between the 2001 marriage law and the 2011 judicial interpretation. The marriage law was proposed and passed by the congress in 2001. However, the marriage law itself only gives the basic setting without offering much detail. So the 2001 marriage law left blanks in some specific questions, such as property rights of house in mortgage and family violence<sup>2</sup>. Local courts interpreting the 2001 law experienced confusion when dealing with different cases. It is a traditional and common practice for the Supreme Court or the Department of State<sup>3</sup> to issue judicial interpretations, which provide clarification for local courts—the 2011 clarification was a Supreme Court interpretation.

The context of Third Judicial Interpretation and why it favors men over women

The Third Judicial Interpretation emphasizes on the distribution of property at divorce. Among the Third Judicial Interpretation, three articles favor men over women.

Article 5 states that if one party purchases real estate before marriage, then the increased value during marriage of the real estate is not counted as common property. This article is different with the first interpretation, in which the increase part of house value is counted as common property.

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<sup>2</sup> It is a common situation in China that the congress-passed law provides little or even zero details in some questions. The lack of details leaves lots of rooms for government to define specific issues as its will. The department of state can directly issue a document, like a regulation, which in turn makes it convenient for the government to keep the 'real' law legislation process in shadow area.

<sup>3</sup> The department of state in China is not the same as what it is in US. Rather than foreign affairs ministry, department of state is more like a 'center government'. And foreign affair ministry is just a part of it.

Article 8 states that if the real estate is purchased by husband/wife's parents and registered under husband/wife's name. The real estate will be considered as a gift to the parents' child rather than a common property of the family. Before the Third Judicial Interpretation, the husband/wife can share a part of the real estate even it is purchased by parents of spouse.

Article 10 states that real estate purchased through mortgage belongs to the party who have registered the property right. If the other party helps with payment, reasonable compensation should be paid. Problem here is compensation is calculated according to the mortgage payment rather than the market value of the real estate which was used before. Because the market value of real estate has experiences a rapid increase, the party who has the ownership will benefit from the Third Judicial Interpretation in this case.

Because there is a convention for Chinese society that the husband or the parents of husband purchase the house cite, the Third Judicial Interpretation benefits husband most.

### The trend of sex ratio at birth

Because of the compensative health cost of abortion, women will try to avoid sex-selective abortion. However, because Third Judicial Interpretation favors men over women, I expect that the changes in law will harm divorce options of women, which in turn increase the likelihood of women accepting sex-selective abortion. As a result, there is a great chance that sex ratio at birth rise significantly in 2012 as the Supreme court issued the Third Judicial Interpretation and make it practical in June of 2011. I exam the expectation with data form PSFD (The Study of Family Dynamics).

The questionnaire of PSFD (The Study of Family Dynamics) ask about not only how many children do respondents have but also the gender and birth date of these children. Graph 1 is based on these data. Graph 1 illustrates the trend of sex ratio at birth during 2005 to 2014. There are three lines of sex ratio at birth representing different data sorting conditions. The blue line is the general sex ratio which includes all the infants regardless whether they are the first, second, or even third child. Yellow line shows sex ratio at second birth only, excluding first born child. Furthermore, the red line limits the observations to second birth given a first-born female child.

Based on Graph 1, there is a downward trend in all three conditions before 2011. The general birth ratio deceases from 1.5 in 2005 to 1.2 in 2011. Birth ratio of second child given a first-born female child also drops from 1.7 in 2005 to 1.3 in 2011. However, all of these ratios increase in 2012 significantly. Sex ratio at second birth and sex ratio at second birth given a first-born female child go back to the level at 2005, rising to 1.5 and 1.7 respectively. Even general sex ratio at birth has an increase from 1.2 to 1.3 between 2011 and 2012. After the huge increase in 2012, all three ratios turn to downward trend again. The time of sex ratio increasing a long is just one year after the time of the Supreme Court issuing the Third Judicial Interpretation. This is not coincidence. And the article will apply empirical analysis to verify the link between increase of sex ratio at birth and Third Judicial Interpretation.

The 2001 new marriage law favors women over men. According to the study of Sun and Zhao (2012), the 2001 new marriage law has a negative impact on the sex ratio. And the general sex ratio at birth drops from 2.3 at 2001 to 1.8 at 2002, a year after the 2001 marriage law reform. The authors accuse the decrease in sex ratio at birth mostly to the 2001 new marriage

law. It is also worth notice that there is a consistent downward from 1997 to 2014, expect the impact of Third Judicial Interpretation.

Furthermore, it interesting to notice that red line is always above the yellow one and yellow line is always above the blue one. This observation verify the statement that sex-selective abortion is more serious in second pregnancy than first pregnancy and thus sex ratio at second birth is higher than at first birth. In addition, the graph support the expectation that son preference is more obvious in second birth when the first child is a daughter.

### Potential impact of "One Child Policy"

The population control policy basically keeps stable during the study time (2005-2014). The government conducted "One Child Policy" in late 1970s. In 1984, government changed the policy to allow a second child if the both husband and wife are from single-child family. This is the start of so called "Two Child Policy". In 2014 December, government further loosed the restrictions on second child and allow a second child if either husband or wife is from single-child family. The "General Two Child Policy" in 2015 even canceled all the restriction on second child. Because the tested period is from 2005 to 2014, there is almost no changes in population policy during study period.

When it comes to the second child, no one will skip or underestimate the impact of China's "One Child Policy". The "One Child Policy" plays an important role in our literature. Economic punishment of giving birth to a second child can be 3-10 times of local average annual income. The fine of giving birth to a third child is even bigger. The exact number varies in different provinces and cities. To an average couple, the fine is not a small number and cannot be ignored. So the economic pressure of the punishment is a source that push people to adopt the

sex-selective abortion cite. As a result, this punishment of "One Child Policy" is one of the reasons which lead to the biased sex ratio at birth.

What if people suffer no restrictions from "One Child Policy"? The couple faces zero fine when they give birth to more than one child. In this case, the couple are able to give birth to a third child if the second child is still female. In this way, without economic punishment, the couple is less likely to adopt selective-abortion. Because Third Judicial Interpretation affects sex ratio at second birth by influencing selective abortion decision, couples who do not suffer from "One Child Policy" will be less impacted by the Third Judicial Interpretation.

As explained above, Third Judicial Interpretation has less impact on couples who are not restricted by "One Child Policy". Then a control group is possible if I test these "unrestricted couples", even the control group is not perfect.

### Control group

Besides the Third Judicial Interpretation, other factors may also affect the sex ratio at second birth. To exclude the impacts of other factors, a control group is needed. Comparisons between treatment group which restricted by One Child Policy and control group which are unrestricted can test the impact of other factors.

It is difficult to find some areas or groups that the Third Judicial Interpretation does not apply to. So I turn to find couples to who the One Child Policy does not apply. As discussed above, unrestricted couples face less pressure to adopt sex selective abortion. Thus changes in marriage law has less impact on these couples. There are several potential control groups under the exceptions of the population control policy.

When it comes to ethnic groups, the majority "Han" occupies over 90% of the population. 55 different minority groups consist the rest of population. The minorities enjoy an exempt from the population control policy. They can give birth to as many children as they want. As suggested above, policy allows a second child for couples where both husband and wife are from single child family. Then these couples are also potential control groups because they are less affected by the Third Judicial Interpretation. However, the survey I rely on does not include questions about ethnic group in their questionnaire.

Another potential control group is the couples who meet the requirements of "Two Child Policy". These couples are allowed to give birth to a second without getting punished. Thus the Third Judicial Interpretation is less likely to influence their decisions because there is no economic pressure that pushes the couple to conduct the sex-selective abortion. Unfortunately, the questionnaire only ask whether the respondent is from single-child family or not. The status of his/her spouse is not included. In this situation, I can not judge whether the couple satisfies the requirements of the "Two Child Policy".

The last exception of "One Child Policy" is household registration. It spells as "hukou" in Chinese. The household registration indicates the legal residence. It works like an internal passport rather than a personal ID. This policy splits population into rural residents and urban residents. People with rural registration are allowed to work in cities without restrictions. However, people with rural registration will face numerous barriers when they try to immigrate their whole family to cities and live in cities afterwards. For instance, medical expenditure will not be covered by medical insurance if the patient holds a rural registration. Rural residents only get medical insurance in places where they register. Also, children of people with rural registration are not allowed to attend school in urban areas. Furthermore, income requirements

are higher for people with rural registration when they try to purchase real estate. As a result, the household registration basically works as a population control policy to keep rural residents out of cities.

According to "One Child Policy", people with rural registration are allowed to give birth to a second child if the first child is female. Luckily, the questionnaire of the survey includes a question about whether the respondent is rural or urban household registration. So couples with rural registration will be our control group. The control group provides the possibility to test changes in sex ratio without impact of Third Judicial Interpretation between 2005 and 2014.

#### Data source

Sun and Zhao (2012) use the 25% sample of 1% Population Survey as their data source. This survey is conducted by the National Bureau of Statistics(NBS) in 2005. Unfortunately, the similar data source for the period of 2005-2014 is not available.

I adopted the Panel Study of Family Dynamics (PSFD) as my data source. The project started in 1999 and targeted at adult population of Taiwan in its beginning stage. This project focuses on relationships and behaviors between respondents and their family members.

In 2004, this project collaborated with the Institute of Population and Labor Economics, Chinese Academy of Social Sciences (IPLE-CASS) to conduct a face-to-face interview of adults aged 25-68 in Shanghai, Zhejiang, and Fujian. All the places mentioned above are province and cities in east coast of mainland China. The questionnaire for mainland China is basically the same as the one used for Taiwan. The survey aims at the situation of the respondent's family and how the behavior of family members affect each other. The project conducted three waves of

follow-up survey in 2006, 2011, and 2013. I only use the data from 2013 survey. Data from previous survey is not included because simply adding data of different waves may lead to overlap of same respondents.

Specifically, the questionnaire records how many children the respondent has and when each child is born (both year and month are recorded). The gender is also included. Based on these data, it's practical to sort the respondents who give birth to a second child when they have a female first child.

Furthermore, I pick up the respondents whose houses are purchased by parents of the respondent or parents of his/her spouse. According to Article 8 of the Third Judicial Interpretation, the party whose parents purchase the real estate will benefit from the interpretation.

#### Difference in difference model

In the DID model, 2012 is set as the time when the Third Judicial Interpretation takes effects on sex ratio at birth. Control group in this model is people with rural household registration and treatment group is people with urban household registration. As discussed above, people with rural registration is less affected by the Third Judicial Interpretation because they are not restricted by "One Child Policy". The model is as following:

$$Y = \beta_0 + \beta_1 D + \beta_2 T + \beta_3 DT + \beta_4 X + \varepsilon$$

Dependent variable Y is the sex of infant at second birth given a first-born female child. Male infant is Y=1 and female infant is Y=0. Dummy variables are used to decide whether or not people are affected by the Third Judicial Interpretation. Urban group is D=1 and rural group is

$D=0$ . To exclude the possibility that sex ratio changes without impact of the Third Judicial Interpretation, time  $T$  is introduced.  $T=0$  represents period before 2012 and  $T=1$  represents period after 2012. Thus, I can construct a treated effect as following:

Treated	$D=0$	$D=1$
$T=0$	0	0
$T=1$	0	1

$Treated = D * T$ . It should be noticed that only people with urban household registration after 2012 are affected by the Third Judicial Interpretation and  $treated=1$  in this case.

The critical assumption of DID model is common trend. According to this assumption, treatment group and control group are supposed to have the same trend if there is no Third Judicial Interpretation. However, common trend may not stand when urban and rural group are impacted by some exogenous variables. So some control are also included in the model.  $X$  here represents the vector of control variables.

Second child interval is included as a control variable. Second child interval refers to the time length between first and second child. Second child interval here is used to control the level of son preference. Given a first-born daughter, a short second birth interval may implies stronger son preference, which in turn rise the sex ratio at second birth. Educational level is also included. The dummy variable “ $compulsory\_edu$ ” =1 represents that respondent has at least completed the 9-year compulsory education while “ $compulsory\_edu$ ” =0 represents that respondent does not finish compulsory education.

Furthermore, “property right” is a potential control variable as well. The Third Judicial interpretation is expected to increase the sex ratio at second birth by protecting the property owner. It is reasonable to expect a much lower effect of policy when property right is controlled. “Property right” refers to whether or not the house is purchased by the parents of husband/ wife. For instant, “M\_Property” =1 represents the house is purchased by parents of husband. “M\_Property” =0 means that parents of husband do not purchase the house. It should be noticed that there are cases where the house is purchased by the couple rather than the parents of husband/ wife. And in this case, “M\_Property” and “F\_Property” are both zero. Situations where husband or wife purchase the house is not included as control variable. The questionnaire mix three situations (husband purchase, wife purchase, the couple purchase together) into one question and I can not tell the difference.

### Results and conclusion

I run the linear regression two times, with and without property as a control variable. Table1 show the results without property right as a control variable. Coefficient of D\*T (true effect of the policy) is positive and significant at 0.05 level. The result supports that the Third Judicial Interpretation leads to a 10.46% increase in the number of male infants compared to the number of female infants. Also, the income gap between husband and wife has a positive impact on the sex ratio at second birth and passes the 0.1 significance test. The results also show that completion of compulsory education decrease the number of male infants by 1.48% and passes the 0.1 significance level when the respondent is female. The education level of male respondent is also negative but not significant. One possible reason is that people with higher education level

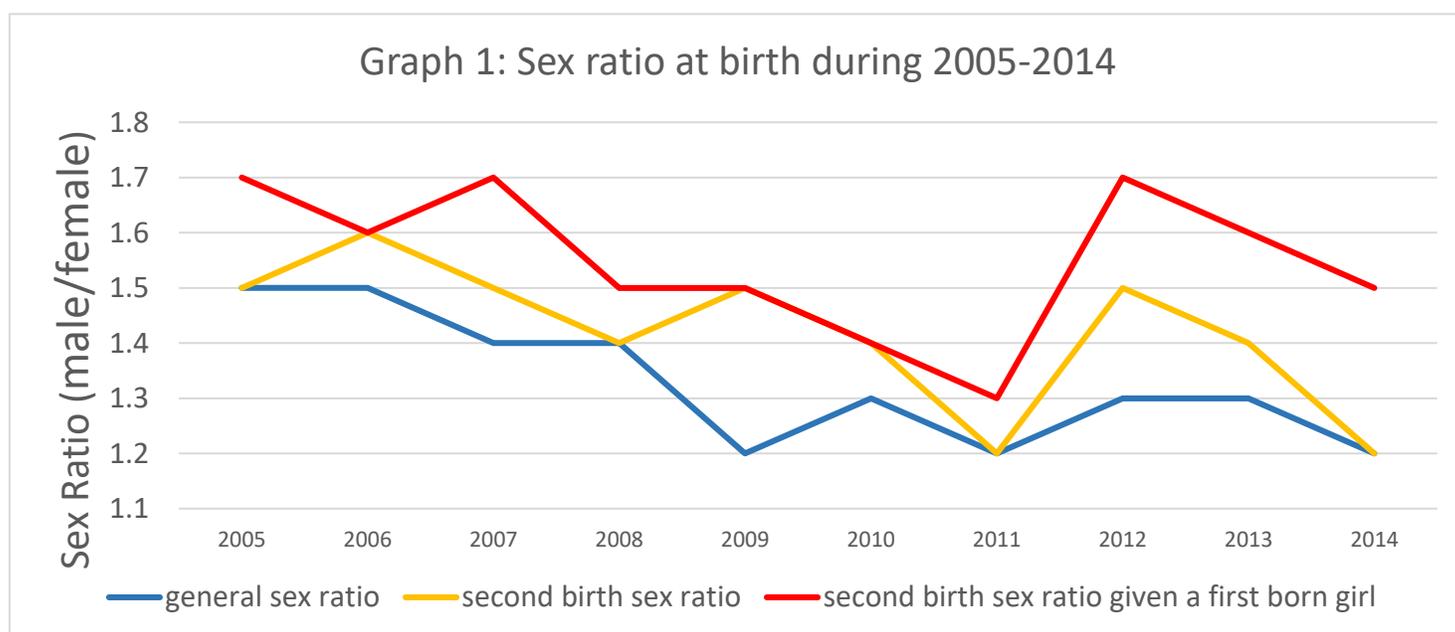
are more likely to abandon the son preference and has less pressure to adopt the sex-selective abortion.

Table 2 illustrates the results with “property right” as a control variable. The effect of Third Judicial Interpretation is much lower than the effect without “property right” as a control group. The coefficient of  $D*T$  is 0.0031 and unable to pass the 0.1 significance test. The results also show that when the parents of husband purchase the house, the number of male infants increase by 6.28%. In opposite, the number of male infants decreases by 9.35% when the parents of wife purchase the house. The results verify my expectation that the property right itself has a significant impact on the sex ratio. Furthermore, the Third Judicial Interpretation has little effect on sex ratio if property right is controlled.

## Appendix

Variable	Coef.	p-value
$D_i \cdot T$	0.1046**	0.0207
Income_gap	0.0067*	0.0639
M_compulsory_edu	-0.0076	0.1173
F_compulsory_edu	-0.0146*	0.0839
Second_birth_interval	-0.0148*	0.0712
D	0.0502*	0.0681
T	0.0008	0.1207
$R^2$	0.6925	

Variable	Coef.	p-value
$D_i \cdot T$	0.0031	0.1570
Income_gap	0.0051*	0.0672
M_compulsory_edu	-0.0072	0.1325
F_compulsory_edu	-0.0094	0.1723
M_Property	0.0628**	0.0450
F_Property	-0.0935	0.1038
Second_birth_interval	-0.0137*	0.0954
D	0.0514*	0.0702
T	0.0008	0.1368
$R^2$	0.6491	



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