MACS 30200 | DATA SECTION
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2015 U.S. Natality Data

The paper makes use of natality data for the entire U.S. for the year of 2015, curated by the National Vital Statistics System of the National Center for Health Statistics (NCHS) with support of the States. The data are based on information abstracted from birth certificates filed in vital statistics offices of each State and District of Columbia. We obtained the data from the official website of The National Bureau of Economic Research (NBER)[1].

The Natality Data of 2015 (N = 3988733) documents every birth in the U.S. along with parents' demographic characteristics and the mother's and newborn's health statistics. Demographic data include variables such as age of parents and educational attainment of parents, race of parents, mother's marital status, state and county of residence, date of birth, and sex of child. Health statistics included are birth weight, gestation, prenatal care, attendant at birth, and Apgar score.

Here are some descriptive statistics for several key variables:

	White	Black	American Indian or Alaskan Native	Asian or Pacific Islander	Unknown
Mother's Race	75.764%	16.063%	1.111%	7.062%	
Father's Race	62.683%	12.250%	0.871%	5.936%	18.260%

Table 1

[1] http://nber.org/data/vital-statistics-natality-data.html

	8th grade or less	9th through 12th grade with no diploma	High school graduate or GED completed	Some college credit, but not a degree	Associate degree	Bachelor's degree	Master's degree	Doctorate or Professional Degree	Unknown
Mother's Education	3.451%	10.636%	24.364%	20.588%	7.920%	19.064%	8.559%	2.455%	1.232%
Father's Education	3.590%	8.524%	24.472%	16.373%	6.015%	16.030%	6.302%	2.798%	14.165%

Table 2

	< 15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-98	Unknown
Mother's Age	0.063%	5.770%	21.364%	28.965%	27.523%	13.276%	2.813%	0.206%	0.019%		
Father's Age	0.006%	1.976%	11.995%	21.771%	25.925%	16.313%	6.626%	2.263%	0.733%	0.325%	12.066%

Table 3

	Married	Unmarried
Mother's Marital Status	59.777%	40.223%

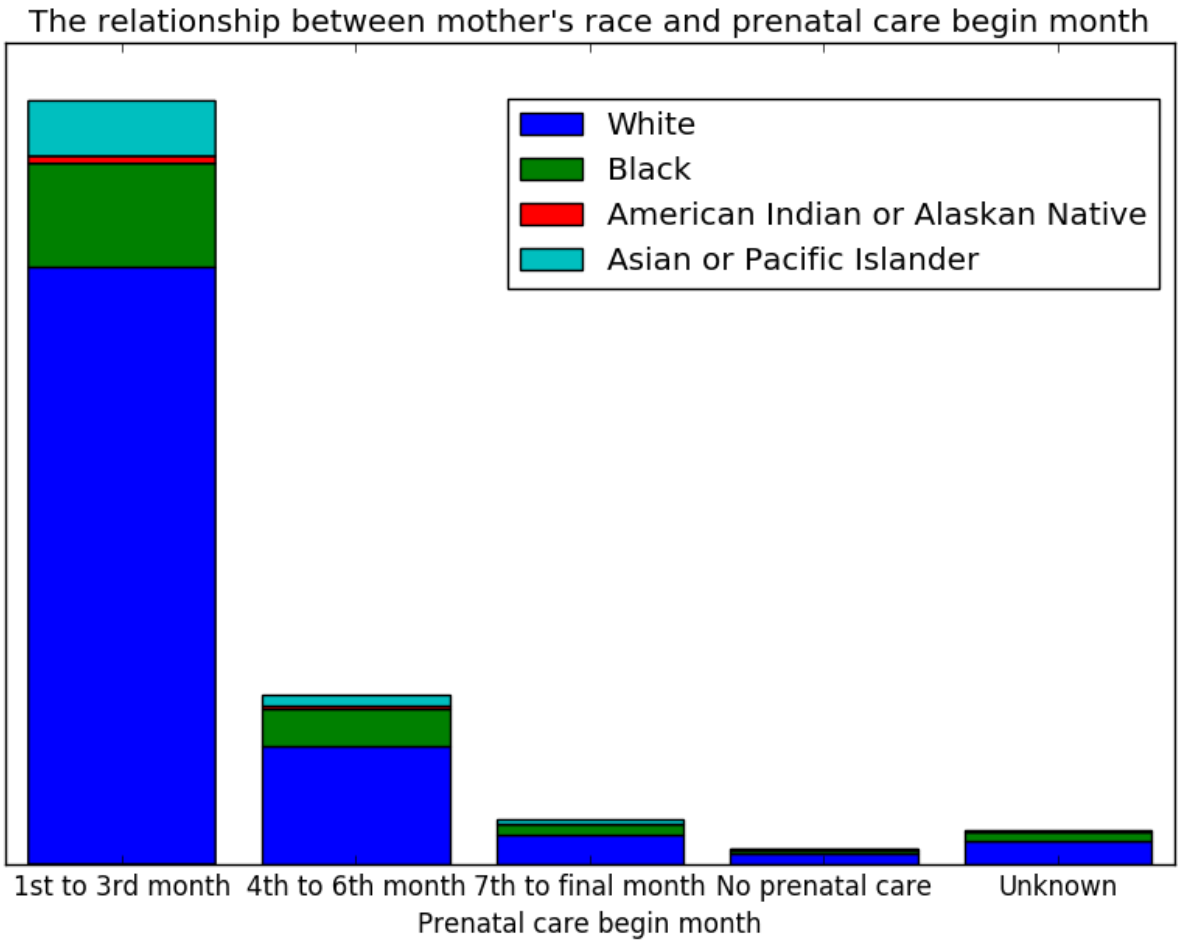
Table 4

	1st to 3rd month	4th to 6th month	7th to final month	No prenatal care	Unknown
Prenatal Care Began	73.048%	16.175%	4.244%	1.497%	3.305%

Table 5

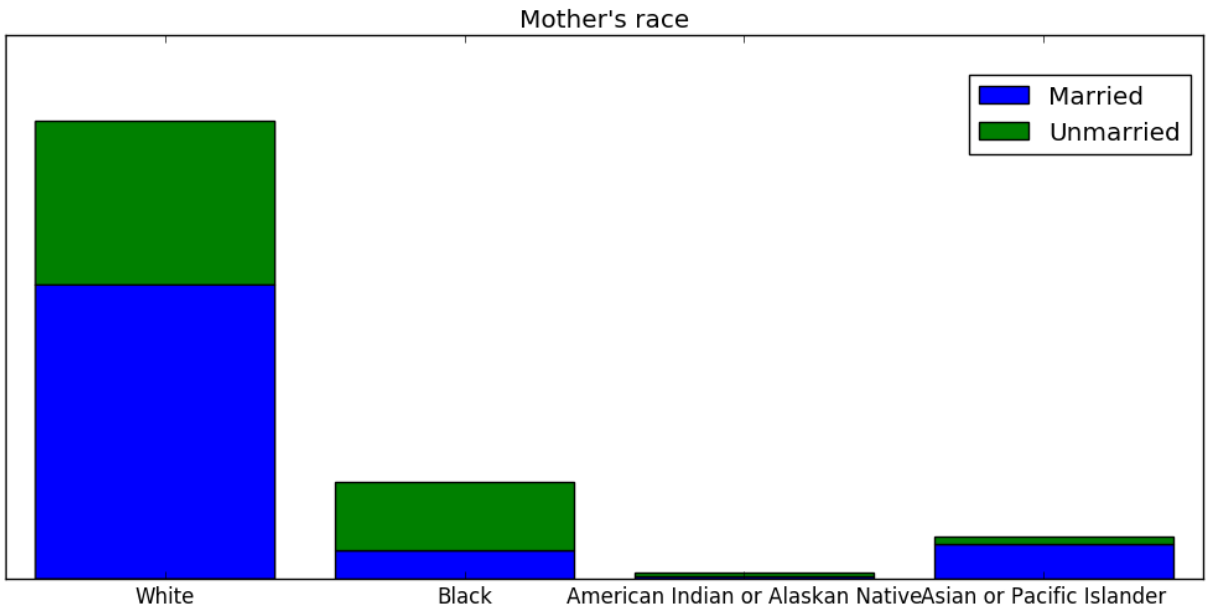
The Natality Data have been widely used in obstetrics (Tucker, Myra J., et al., 2007), gynecology (Schoendorf, Kenneth C., and Amy M. Branum, 2006; Durkin, Maureen S., et al., 2008), and paediatrics research (Shay, David K., et al. 1999; Leader, Shelah, and Kimmie Kohlhase, 2003). It is also used in various interdisciplinary research exploring the effect of parental socioeconomic status on sex ratio (Douglas Almond and Lena Edlund, 2007), racial and ethnic infant mortality gaps (Elder, Todd E.; Goddeeris, John H.; Haider, Steven J., 2016), delayed childbearing by education level (Heck, Katherine E., et al., 1997) and so on.

As the influential factors for prenatal care perception are the main focus of this research, we would begin exploring the natality data from visualizing the relationship between prenatal care begin month and mother's race.

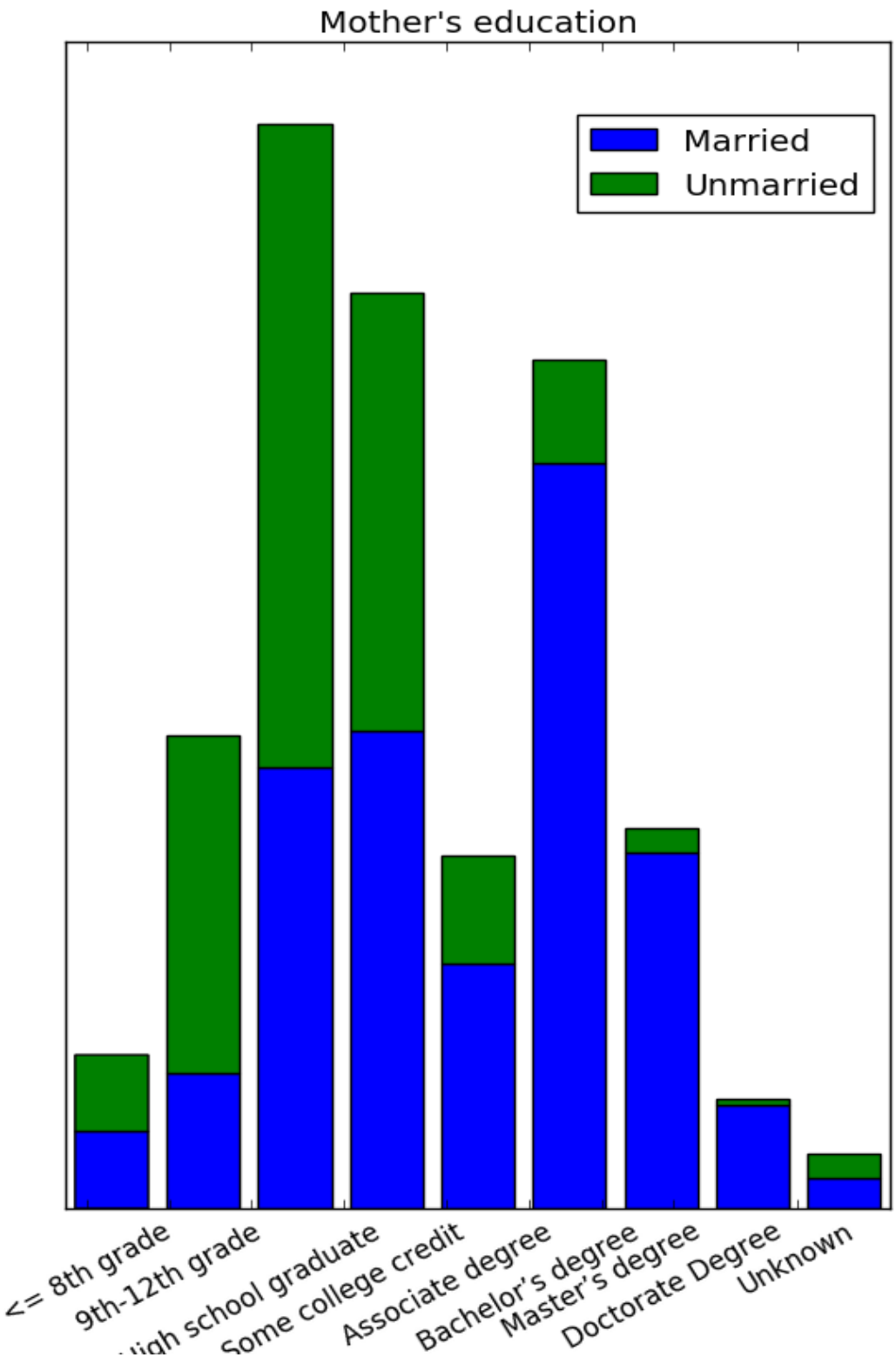


The above plot shows that the majority of Asian or Pacific Islander begin prenatal care in first or third month and this proportion is much bigger than that among White, Black, and American Indian or Alaskan Native, which serves as an indicator that Race does affect the prenatal care perception, and Asian or Pacific Islander seem to attach more importance to prenatal care. We would take a closer look at this assumption in later sections.

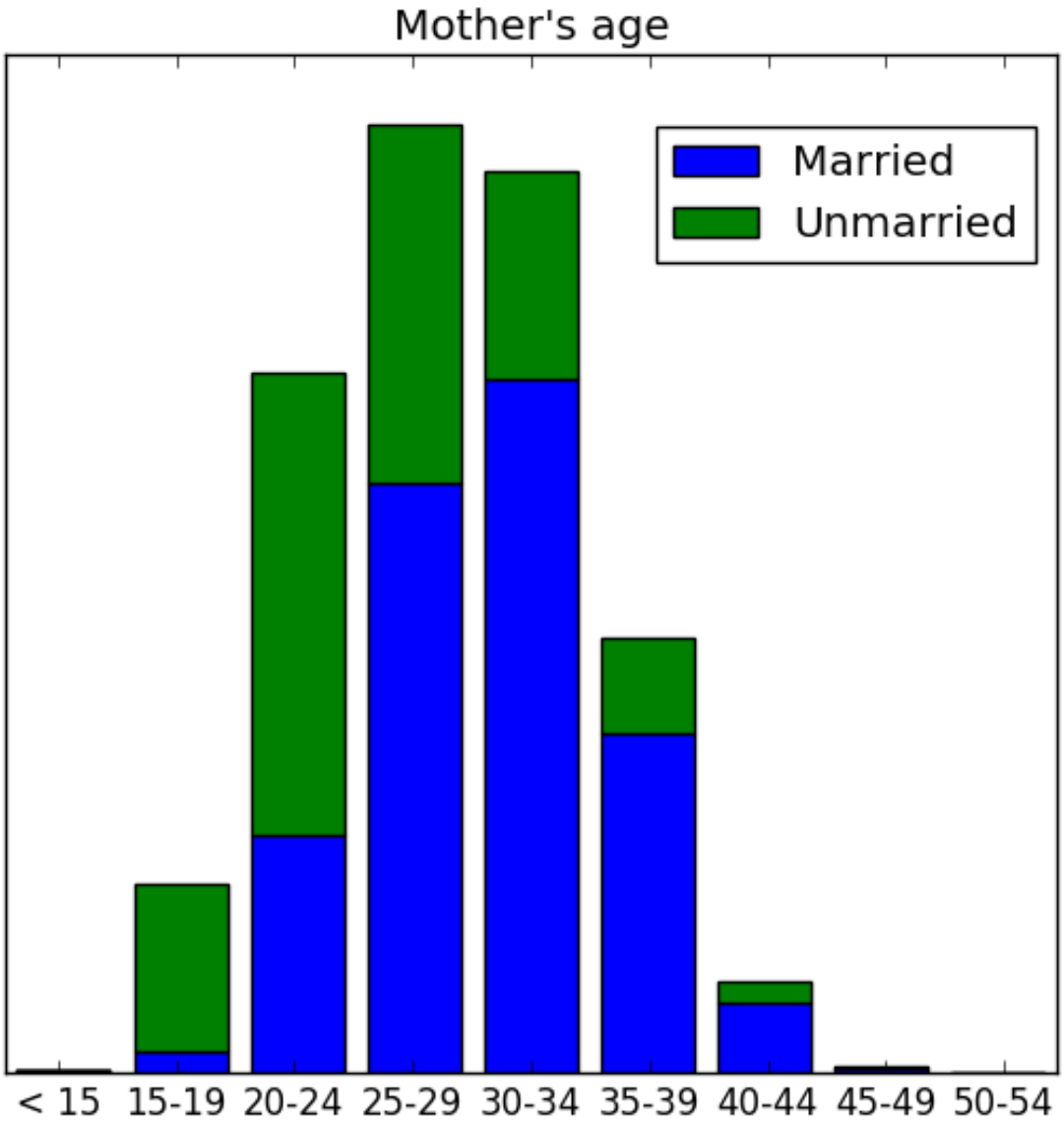
Taking Mother's Marital Status as a condition for the above variables, we may inspect more characteristics of the data. Here are some of the plots we may find interesting.



The above plot shows that the proportion of married mother is larger than unmarried mother among white, American Indian and Alaskan Native, Asian or Pacific Islander, while among Black, unmarried mother is more than married mother. Since marriage may lead to more stable life and higher income, which is the requisite of having prenatal care, it should be considered as a strong indicator of prenatal care perception as correlative with race.



This plot indicates that higher educated mothers are more likely to be married.



This plot indicates that order mothers are more likely to be married.

All of the above plots show that mother's race, education level, and age are correlated with marital status. Therefore, we will consider this correlation in the following data manipulation and modeling process.

Reference

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Heck, Katherine E., Kenneth C. Schoendorf, Stephanie J. Ventura, and John L. Kiely. "Delayed childbearing by education level in the United States, 1969–1994." *Maternal and child health journal* 1, no. 2 (1997): 81-88.