The Route to Very Low Fertility:

The Case of Italy

Michael J. White and Ying Liu

Population Studies and Training Center

Brown University

The very low fertility of certain European countries, especially those of the Mediterranean, emerged as a demographic puzzle emerged for the late 20th Century. Italy provided arguably the signature case. Among high-income countries, Italy was presumed to have characteristics of family values and female labor force participation that would favor higher fertility than its European neighbors to the north. Thus, Italy's very low fertility rate challenges contemporary theories of childbearing and family building. Even as this fertility pattern challenged theory, it also challenged empirical analysts, as a wide array of competing hypothesis were offered and then required empirical test.

We analyze data from the Italian Longitudinal Family Study (ILFI). Drawn from an original sample of 4,404 households within which all members are interviewed (9,770 individuals >18 years old), ILFI includes detailed fertility histories that make it especially valuable for shedding light on the Italian case. ILFI also includes detailed employment, residential, and marital histories. The first wave of the panel took place in 1997 with biennial follow-up. We here analyze both the prospective and retrospective data in ILFI, thus for the oldest cohort tracing well back into the 20th century. While such data are extremely rich and valuable, they do not represent the experience of those who died before 1997, raising some issues of selectivity with regard to older cohorts. Nevertheless, the ILFI data provide and extraordinary resource for providing insight on the recent Italian transition to sub-replacement fertility.

We improve our understanding of the Italian case exploiting these longitudinal data to examine the key sequence of family building events: first union, first birth, and second birth. We organize the data in *person-month* format. By working with such fine-grained temporal information, we can better disentangle the effects of various covariates on fertility trends. Our statistical model is a discrete time event history approach, in which we take the event of interest to be a function of characteristics of a the women in the recent past: lagged one month in the case of marriage; lagged nine months in the case of birth outcomes. (Future models will explore alternative specifications for the temporal dynamics.)

Our approach to the issue of the Italian low fertility is decided demographic. A wide variety of factors have been nominated to help explain this phenomenon in Italy and beyond.

1

Unfortunately, some of these theories offer mechanisms that are hard to specify or do not lend themselves to readily available covariates entered into testable models. So, by contrast, we focus on analyzing the timing of these three events (union formation, 1st birth; second birth) as function of several very basic covariates: woman's age (cohort); education; employment; marriage type (secular or religious); and region. By doing so, we can more clearly show the impact of changing female education and employment on family formation outcomes. We can also examine how much the regional relocation of Italy's population – long known for strong regional differences in cultural norms and demographic behavior – can be linked to these changes.

Ultimately our goal is to decompose the several-decade change in fertility into portions attributable to these various demographically-linked components, as well as to otherwise unexplained secular shifts. (Of course the decomposition itself is non-trivial.) Beyond the implication from estimation of various covariates, we can revisit timing itself, and ascertain how the changes in the rate of transition for one event influences the rate of transition (and cumulative occurrence of) subsequent events. Once completed, our demographic analysis can help shed light on the plausibility of various competing paradigms that have been offered for the puzzling Italian case.

Most centrally for theory, we anticipate that our efforts will shed light on the relative importance of the economic model of fertility change versus the more cultural model. The economic (or structural) model would look for explanations in female education gains and changing labor force participation. A more culturally based model would acknowledge these – while asking, in turn, what drove them – but also make inferences from the relative importance of increased secularism (as in the Second Demographic Transition paradigm) and the role of persistent or diminishing regional differences. Our prior work did find support for economic determinants of family formation, but also indicated the importance of regional differences and secularization, suggesting that cultural and ideational factors must be considered. This paper pursues this issue in much more detail with richer data.

To illustrate our approach, we provide preliminary results in Table 1. These coefficients point to several factors at work over the long term in a basic model across the

full sample.   Age and its square unsurprisingly have considerable power in explaining fertility. Our models also point to education – a trait that traces a long-term path of increase for women – as important overall. Women who have secondary education show appreciably *lower* fertility over those who have only primary or no education. In this initial model, women with higher (university-level) education actually show *greater* fertility. Labor force attachment is clearly important, but the way in which it works clearly needs further exploration. We do find that the working itself does reduce the odds of giving birth subsequent months.   Women who never worked or who were yet to work (young and likely still in school) have much lower fertility. Unquestionably, the role of female employment in determining the rate of transition into a union is implicated. In turn, one wishes to understand the first birth transition in light of the transition into union, and the evolution of that transition over time.

Secular changes are evident in out models as well. Marrying in the church strongly predicts higher fertility. By extension, the well-know decline over the years in religious marriage in Italy would serve to decrease fertility. The overall cohort effect is also quite important; net of all there other controls in this illustrative model, each additional (cohort) decade decreases predicted fertility by one percent. These models also point to persistent regional differences

Future work

Our work from this point forward will include additional data improvement. (We do have richer information on the kind of work for the woman.) We also will revise our model specification in several ways, examining way in which temporal effects (lags) might be operating, improve handling of missing data, and stratify more sensitively for population at risk. We can also – crucially – work on interaction between cohort and other demographic traits. Our initial explorations indicate that they will be important. And of course, we will provide a decomposition from these regression results in an effort to indication how much of fertility change is linked to changes in age composition, educational attainment, labor force participation, declining religiosity, and other secular trends.

Table 1 Preliminary Regression Results Predicting Fertility
Discrete Time Person-Month Model for Italian Women

	Age	0.739			
		49.660			
	Age-Squared	-0.015			
		-51.970			
	Cohort	-0.001			
		-11.420			
	Religious Marriage	1.615			
		45.130			
	Primary School	0.027			
		1.150			
	Secondary School	-0.082			
		-2.820			
	University Educ	0.073			
		2.520			
	Work	-0.043			
		-1.710			
	Never Work	-0.113			
		-4.380			
	Pre-Employment	-0.340			
		-9.780			
	North	-0.020			
		-0.840			
	South	0.141			
		5.810			
	Islands	0.202			
		6.510			
	Constant	-14.701			
		-76.400			

Notes:
Z-scores beneath coefficient
Estimated with Robust Standard Errors
N person-months=2070547; N women=6222
Adjusted for missing data (coeff. not shown).
Pseudo R2 = 0.103
Nine month covariate lag

4