Connected and Apart: An Analysis of Friendship Proximity and Population Dispersal

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The relationship between developments in technology and the impact upon population dynamics are fairly well known, and often pivotal in the directionality and magnitude of human population growth. For example, medical advancements prolong life expectancies and curtail infant mortality, and the development of rapid transit such as the U.S. highway system enabled populations to disperse around urban economic cores, birthing the phenomenon of suburbia and urban sprawl. In general, while populations follow biological regularities which can be captured, analyzed, and extrapolated, such regularities do not exist in vacuum. Specifically, population dynamics ride on the ebbs and flows of technological development – some with rather minor consequences, other which fundamentally altered our understanding of population processes, development, and trajectory.

A more recent example that has by most accounts fundamentally changed the extent to which population interact is the increasingly large share of the world population with access to the internet. While the magnitude of this phenomenon in general cannot be understated, our focus here is specifically within the context of online social networks (OSNs). Though broad in definition, OSNs essentially allow connections between individuals via an online persona; in essence, this allows for individuals to form marked relationships at massive scale, regardless of physical proximity. Our understanding of how and to what extent such technologies impact human populations is still very much in the embryonic stage. Our intent here is not to argue that online social networking websites had as profound of an impact on population relations as similar communication-facilitating technologies such as print or telephone; rather, we present OSNs as a particularly meaningful avenue into understanding human populations based on the fact that in no other context has information about humans, human relations, and identity been combined in such a satisfactory manner at the scale of hundreds of millions of individuals.

In other words, there has been fairly wide speculation on the extent to which OSNs have altered human patterns of communication and relations, but little empirical work directed towards the contours of such relationships. Littler still has attention been directed towards learning what communication technologies of this type can teach in regards to human relations and population regularities. This

proposal is a modest step in this direction using information from one of the largest online social networks, Facebook.

Founded in 2004, Facebook combines 955 million monthly active[1] users via a "social graph" which is intended to connect individuals to the people and the things they care about. The result is billions of online "friendships" wherein two individuals acknowledge a mutual connection via the act of sending or receiving a friend request. The basic goal of this work is to describe the contours and variations of physical proximity upon "virtual" friendship relationships established on Facebook. Though relatively modest in terms of empirical contributions, the larger theoretical implications are manifold: The particulars of this work being to elucidate the extent to which physical proximity is or is not a necessary component of human connectedness, or rather, how human connectedness differentiates based in part on physical proximity. The implications of such findings towards population density, sprawl, and other population processes are numerous. Specifically, does active usage of social networks fit our expectations of relative population density and do our capabilities to maintain human relations across long distances compound upon economic (i.e. virtual workplaces, third spaces, etc.) decentralization? Are younger generations of populations experiencing differential expectations for space and human contact, and what implications do such trends carry going forward as younger populations branch off from extant familial arrangements?

Our intent is to not be proscriptive and definitive in our findings so much as stimulating insofar that the rather important questions of what considerations does the proliferation of OSNs add to considerations for applied demography, and what does demography have to teach us about the ways in which we analyze or think about the dynamics of human behavior, are partially unveiled by analyzing the connections made through online social networks such as Facebook.

[1] As of June 2012