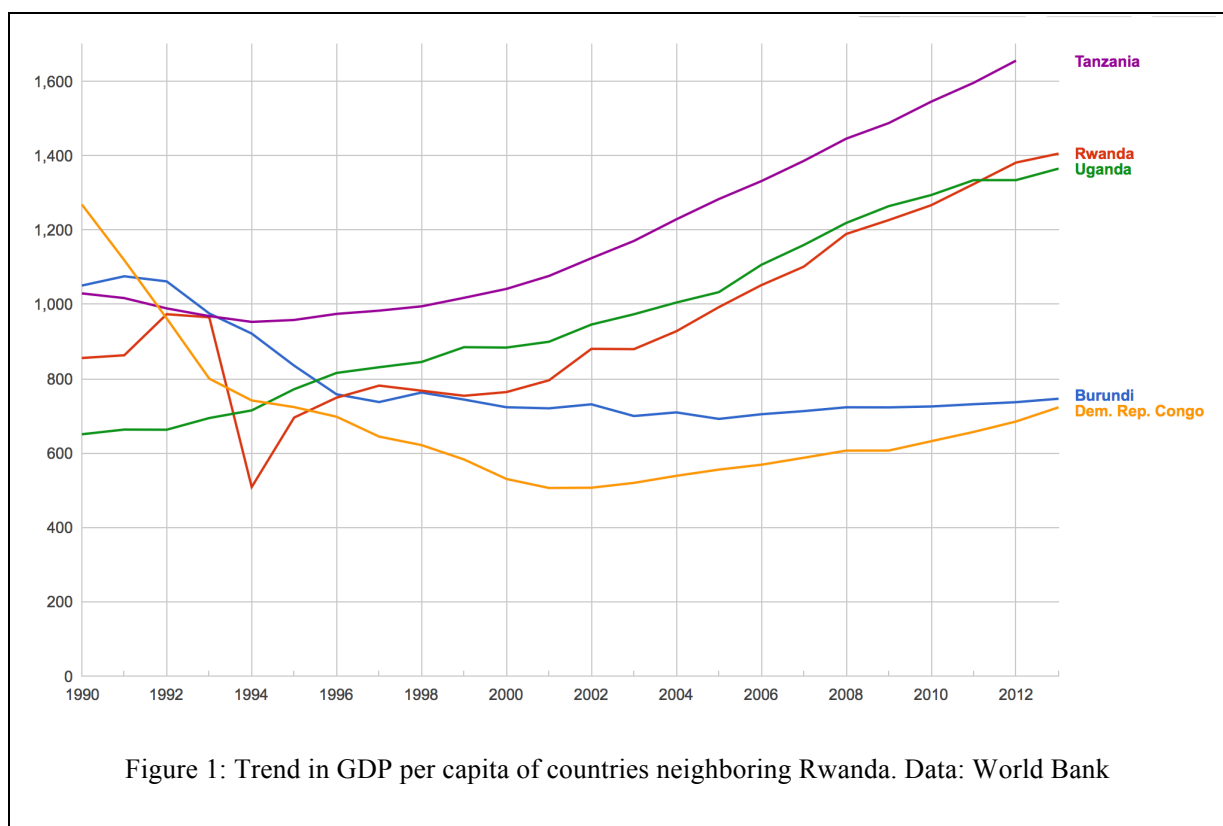


UNDERSTANDING TRANSITION: ‘ONE RWANDA’

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Rwanda provides an interesting setting to understand social transitions. The country in 1994 suffered one of the 20th century’s most devastating genocides fueled by deep inter-ethnic hatred, causing massive damage to the country’s economy and social cohesion. However, Rwanda quickly recovered from the damage, and took a path of growth on a range of developmental indicators. Importantly, Rwanda has been successful at achieving reconciliation between tribes, with high community participation and high trust in the minority (Tutsi) led government. What were the catalysts of this transition?

A look at the neighboring nations of Rwanda (see Figure 1) suggests that fast economic growth is a feature common in the region with Tanzania and Uganda also achieving similar levels of rapid development. However Burundi, which shares close similarities with Rwanda, also suffered due to Hutu-Tutsi conflict, but unlike Rwanda, it has failed to register such transformational development. Has Rwanda merely flown in the tide that is also bringing progress to its neighbors, helped by foreign aid received by the nation after the genocide, with growth also improving social relations? Or has its growth been uncharacteristic of countries in similar situations?



¹ University College London. I will like to thank Dr. Elias Papaioannou for his guidance during writing this case.

Synthetic Twin Approach:

Cross-country comparisons are difficult owing to the multiplicity of confounding factors. For example, Burundi appears to be a suitable country to contrast Rwanda with, as they both are resource poor land locked countries sharing a common colonial history and ethnic makeup, yet Burundi was poorer at the time of independence than Rwanda. Similarly while Uganda was relatively at similar level of economic development, factors such as colonial origins, ethnic make-up and pre-colonial state centralization [Gennaioli & Rainer, 2006] were different from Rwanda. Thus over the past decade Synthetic Control Approach (SCA) [Abadie and Gardeazabal, 2003; Billmeier and Nannicini, 2013] has been used to analyze cases of diverging trends. SCA is similar to an event study where the focal nation faces an event, like a new economic policy, and it is compared against a weighted pool of nations that have not faced such an event, such that the synthetic control matched the focal nation pre-treatment, based on a set of predicting variables.

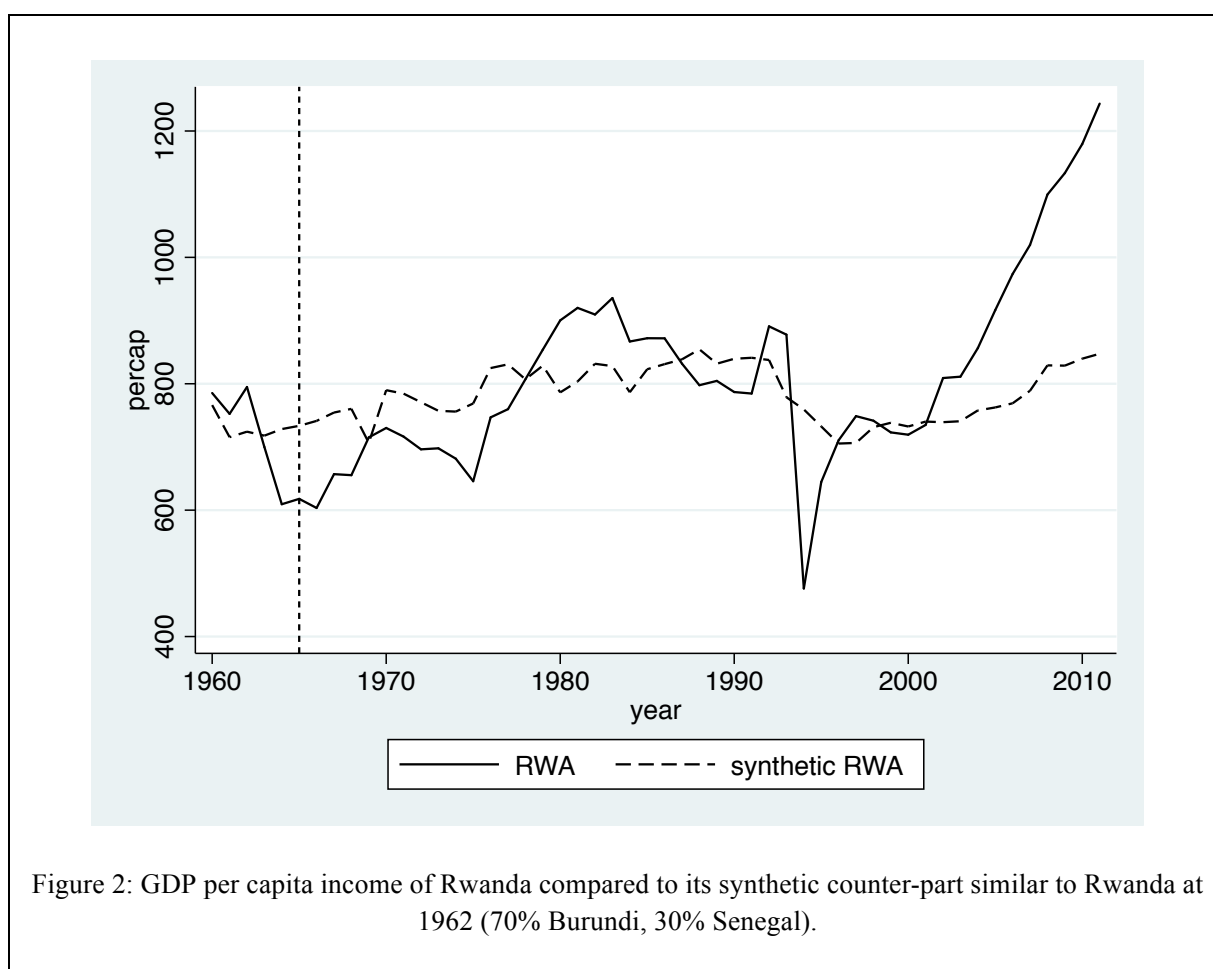
Overwhelming evidence exists that Rwanda paid a heavy price for the genocide in the immediate aftermath, which is also visible in the abnormal slump in its GDP per capita income that is not characteristic of other nations during that time. However, another interesting question remains. If Rwanda had a twin at birth (independence), would it have suffered historically from such economic damage due to ethnic violence, and would it have also charted a similar transition towards growth and reconciliation in 2000s. What would be the point at which the Rwanda and its twin would diverge?

To understand the unique trends in history of Rwanda a variant of Synthetic Control Approach is devised where the objective is to look at the development trajectory of our focal nation, Rwanda, to recognize the periods of exceptional growth (or decay), since independence, which was not observed in nations with similar initial conditions. The first years of the 1960s were an important starting point in African history, as most African nations got independent during that period, with 1960 marking independence of a large number of colonies. We make use of this unique period in Africa to develop a synthetic twin of Rwanda, by optimally assigning weights² to a donor pool of 16 African Nations that achieved independence around Rwanda (1960-64), data for whom is publicly available (see Appendix Table 1), such that the twin nation closely resembles Rwanda in:

² If there are J control countries and k predictors (parameters that predict a nation's GDP per capita, which can be a linear combination of a pre-treatment variable, including the outcome variable itself) then twin country's weights are found through minimizing the function $(X_1 - X_0W)'V(X_1 - X_0W)$, where X_1 is a $(k \times 1)$ vector of predictors for the treatment country, X_0 is a $(k \times j)$ matrix of pre-treatment (1960-64) predictors for the control countries, W is a $(j \times 1)$ vector of time-invariant weights assigned to control countries which sum to one, and V is a $(k \times k)$ diagonal matrix with the diagonal elements representing the weightage of each predictor found through a nested optimization procedure such that the mean squared prediction error of the pre-treatment outcome variable (GDP per capita income) is minimized. Given these weights, the treatment effect in a given post-treatment period t is given as $Y_1^t = \sum_{j=2}^{J+1} w_j^* Y_j^t$, where Y_1^t is the outcome variable for the treatment country, Y_j^t is the outcome for control country j for period t and w_j^* is the optimized weight assigned to country j . See Abadie and Gardeazabal [2003] for more details.

- Economic development (GDP per capita) during the year 1960-64 and especially in the year of independence 1962 (from Penn World Table),
- School enrolment (to measure Human Capital) and Investment Share as a percentage of GDP (to measure Physical capital) during the year 1960-64 (from Penn World Table).
- Fixed endowments that may explain a nation's future growth. Data is derived from Nunn [2008] and Nunn and Puga [2012]. These factors include:
 - *Geographic factors* (latitude, longitude, length of coastal area, ruggedness, fertility, tropical climate, desert climate, average distance from sea)
 - *Mineral Wealth* (per capita gold, oil and diamond reserves)
 - *Social composition* (ethnic fractionalization, adherence to Islam, European descent, population density in 1400)
 - *Historical determinants* (Colonizing nation, level of slave trade exports, level of Historic state development).

Figure 2 shows the growth in GDP per capita of Rwanda and its synthetic counterpart, which resembled the country in period just before independence on physical and human capital, fixed endowments and income (see Appendix Table 2).



Rwanda's history, since 1962, can be divided in three distinct episodes uncharacteristic of the countries that made Rwanda's synthetic twin:

- *First*, 1962-64 ethnic violence immediately following independence in 1962 disrupted Rwanda's nascent economy. However, in spite of a setback in income, Rwanda followed the trend as predicted by its twin until 2000.
- *Second*, the Rwandan Genocide of 1994 from which the economy relatively quickly recuperated helped by foreign aid that was given to Rwanda in the period immediately after the genocide. Yet, although Rwanda overcame the sharp decline, it stayed in a state of decline in years immediately preceding and succeeding the genocide, which is in line with the trend showed by the twin that also exhibited negative growth in income after 1990.
- *Third*, rapid economic growth after 2000.

Thus the analysis shows that Rwanda's history experienced uncharacteristic levels of economic setback due to ethnic strife compared to its peers. However after almost 40 years marked by a vicious ethnic conflict, since 2000 Rwanda has undertaken rapid growth. What could account for this rapid transition from a state of conflict to a state of growth? Two arguments are generally proposed, first is the post genocide foreign aid given to Rwanda, and second is the effort of the government to promote inter-ethnic unity through promotion of Rwandan nationalism [Blair, 2014].

Rwanda's Exceptional Growth:

In 2001 December, Rwandan government introduced a new Flag and a National Anthem emphasizing a common Rwandan identity based on the principles of "*unity, work and patriotism*". The previous national anthem was commented to be of ethnic connotations while the flag's use of color red and black was considered to be a reminder of Rwanda's history of genocide. This change in national identity was a part of a larger effort by the government towards reconciliation and unity. This also includes efforts to increase community participation; including institutionalization (in 1997) of *Umuganda* (meaning 'coming together in common purpose to achieve an outcome'), which was a traditional Rwandan practice where members of the community would call upon their family, friends and neighbors to help them complete a difficult task. People have collectively build schools, medical centers and hydroelectric plants as well as rehabilitating wetlands and creating highly productive agricultural plots.

These efforts to build Social Capital have been claimed to be successful [Rwanda Senate, 2014], however it is noteworthy that Rwandan genocide has also been attributed to 'negative' social capital of close intra-ethnic ties [Colleta and Cullen, 2000], which created strong in-group, out-group bias. In comparison to such intra-ethnic social capital, the current effort involves creating bridging inter-ethnic ties between people geared around the philosophy of *One Rwanda* and thus resembles an effort to transition from clan oriented society towards cosmopolitanism. While African Values Survey [2008, 2012] shows that generalized trust in

the region remains low, other surveys [Rwanda Senate, 2014] have shown that trust in the region has increased and especially institutional trust is very high, with low levels of corruption in the country. Rwanda Senate [2014] citing reports of Rwanda's National Unity and Reconciliation Council suggests there has been an increase in social cohesion and inter-ethnic relations since 1994, with ninety two per cent of respondents thinking that there has been an increase in social cohesion, and eighty per cent report an improvement in inter-ethnic relations and levels of trust between communities.

...or Twin's Exceptional Stagnation:

Another possible explanation for Rwanda's relatively exceptional development could be its twin's stagnation. As 70% of Rwanda's synthetic twin draws from Burundi, it is noteworthy that violence also caused much disaster to Burundi due to the genocide and a Civil War. However while Rwanda received significant aid for the two years (1994 and 1995) helping the country recuperate, Burundi was left out, and in fact faced an economic isolation in years immediately following 1994 (see Figure 3). Larger economic aid Rwanda received during the time could be attributed to the conclusive nature of the Rwandan Civil War with victory of *Rwandan Patriotic Front* in 1994 and Rwanda's quick transition from war to state-building. On the contrary Burundi Civil War was long drawn (with a peace agreement reached in 2005) and though the effects of violence in any given period weren't as devastating as Rwanda, yet the war limited Burundi's state building efforts. However confoundingly since 2001, around the same time as economic growth of Rwanda accelerated, economic aid to Burundi has been greater than Rwanda (as a percentage of GNI) and thus any positive effect of foreign aid on Rwanda should be attributed to the timing of the aid to help the economy recuperate just after the genocide's devastation.

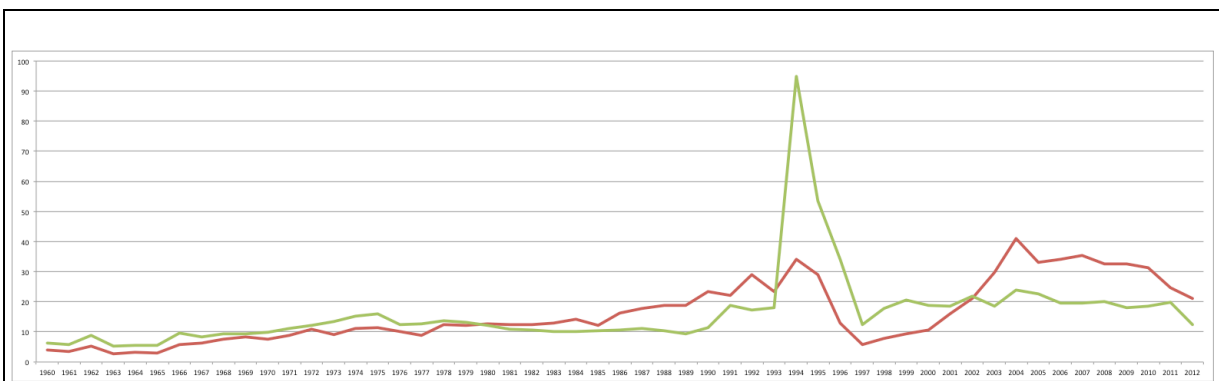


Figure 3: Foreign Aid as a percentage of GNI for Burundi (Red) and Rwanda (Green). Source: World Bank Data

The role of timing in foreign aid shows the enabling effect foreign aid can have in an impoverished society, to develop opportunities which can then motivate the population to engage in meaningful collective engagement and building bridges. In absence of such timely enabler like in case of Burundi (due to isolation and political uncertainty), even if the society had a potential to build trust, it is lost due to lack of good opportunities.

Thus the case of Rwanda shows how building bridging social capital through use of narratives of unity and promotion of community engagement and dialogue, was at the core of Rwanda’s stability and growth. However, such social capital was not built in vacuum, and it was enabled by foreign aid immediately after the genocide, and presence of a relatively stable pro-business government, two of the factors which were not available in Burundi, Rwanda’s closest counterpart.

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APPENDIX: SYNTHETIC TWIN

Table 1 Donor African Countries and their year of independence:

Country	Independence Year	Colonizing Nation
Benin, Central African Republic, Cote d'Ivoire, Cameroon, Republic of Congo, Mali, Mauritania, Niger, Senegal, Togo	1960	France
Tanzania	1961	UK
Burundi, Rwanda	1962	Belgium
Uganda	1962	UK
Kenya	1963	UK
Malawi, Zambia	1964	UK

Table 2 The twin’s value of predictors compared to Rwanda:

Parameter	Rwanda	Twin
Income in 1962 (Real GDP per capita in 2005US\$/Population)	794.8656	724.1512
Human Capital (Index of human capital per person, Penn World)	1.117894	1.158046
Physical Capital (Share of gross capital formation at current PPPs)	0.015886 4	0.0479259
Latitude	2	15.4

Longitude	29.91774	16.5813
Average distance to nearest ice-free coast (1000	0.945838	0.6834145
Terrain Ruggedness Index (100 m)- from Nunn	3.309409	1.319036
% of fertile soil	42.96993	34.98304
% of desert	0	0
% of Tropical Climate	68.87956	63.24723
Coastline Area (Log (coastline/land area))	-4.60517	-2.924625
Log gold production per capita	-3.503525	-5.988399
Log oil production per capita	-9.21034	-9.21034
Log diamond production per capita	-6.907755	-6.907755
State development - from Gennaioli & Rainer	0.982	0.9047
Colonial origin indicator: Belgium	1	0.7
Log total slave exports normalized by land area	-2.302585	3.067096
Log population density in 1400	2.945036	2.384969
Ethnic fractionalization - from Alesina et al (2003)	0.3238	0.41474
% Islamic	9	28
% European descent	0	0.39