“Thought Paper”: The Role of Social Capital in Frontier Capital Markets

#7: “Executing the Resource Generator Technique-Analytical Results Part 2”

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In this paper we analyze results and further interpretations on the basis of the collected data. Our data collection methodology was described, discussed, and criticized in Thought Paper #5 available on the Network Science Center Web Site at www.netscience.usma.edu. This first analytical results paper introduced general findings concerning white and blue collar workers in all three Frontier Markets: the Dominican Republic, Ghana, and Tanzania. This paper will explore general findings relating to gender differences in the three different countries. In each paper the analysis is subdivided into the three different categories (ties) of social contacts. We will publish more detailed analytical results in a future paper. The following results and subsequent analysis are aimed at the more casual reader.

General Findings

Our team has determined that it’s not always the comparison between the two professional categories in a given region that is interesting. We also find striking similarities and differences among blue or white collar workers as well as women and men in the different locations, although these must be scrutinized very carefully. The diverging social and political environment, and difficulties with the data collection process (and hence the data) should be taken into account in any analysis. The small survey population cannot be representative of all layers of the respective society.
Analysis

Our team wrestled with limited data as discussed in a previous thought paper. We then utilized Google Refine to bring the data in order and summed up all the social resources in its breadth per interviewee (spectrum of available social resources) as well as the diversity of all social resources. The latter consisted of counting all social resources each interviewee claimed he/she had access to. We also totaled each social resource across the board of respondents (depth) in order to see which resource was most and least represented in our samples. Then, we conducted statistical analysis including Pearson’s R and R2 of the three datasets using Microsoft Excel and R. The confidence intervals were established at 95% probability.

Gender-Split General Findings

In this sub-chapter we will present findings from the analysis of our data split along gender lines. Looking at gender-specific analysis results, we find that women and men have access to equally diverse social resources in all three samples. It is only in Ghana that at least one man claims to not have anybody providing any desired social resources. In Tanzania at least one woman reported that she has no acquaintances and at least one man who claims not to have any friends or acquaintances with any of the social resources in question. Regarding the amount of social resources, it appears that the interviewed men and women in Tanzania have a much greater number of social contacts to turn to per person than women and men in the other two countries. In the Dominican Republic, the men in our sample have on average many more social contacts in all ties than the women. This is not true for Ghana and Tanzania, where women on average claim at least twice as many social resources. Male respondents in Tanzania and the Dominican Republic have access to the most social resources, but their Ghanaian counterparts have a greater diversity of social resources at hand. Compared to Ghanaian women, men in Ghana have access to only half the social resources. And in contrast to the interviewees in the Dominican Republic, Ghanaian male respondents have twenty times (males) and seven times (females) less social contacts. On the other end of the spectrum, the male respondents in the Dominican
Republic claim to have access to more than three times as many social resources than female interviewees. But, in all three locations the interviewed women claim access to at least the same spectrum of diverse social capital (Dominican Republic), but in Ghana and Tanzania the range of different social resources is much larger than that of the respective male respondents.

First, we will look at the interpretation of our findings for women in all three categories and locations. Comparison with data on male interviewees will also be entailed in the following sections.

General Findings from the Gender-specific Data

Many of the interviewed women’s friends and family members know how to “use a computer” (more than 7% among family members, more than 11% among friends) or “graduated college” (more than 7% in the Dominican Republic in all three categories and 11.67% for family members in Ghana). While in the Dominican Republic, college graduates could also be found amongst the majority of acquaintances, in Ghana and Tanzania only a minimum of the friends (less than 1%) “graduated from college.” Supporting Granovetter’s theory of the strength of weak ties (1983:205), we find that many acquaintances of Tanzanian women (9.51%) and more likely acquaintances (13.04%) than friends (0.36%) of Ghanaian women “could offer a job.” No family member in either interview location was able to “offer a job”, and in Ghana this social resource appeared to be the least prevalent type of social capital provided among the women’s friends. “Membership in political parties” appears to be equally more likely among acquaintances than in closer ties. Many acquaintances of Dominican (10.52%) and Ghanaian women (21.74%) are institutionally politically active. In contrast, only few friends of women in Ghana (0.36%) and Tanzania (1.56%) are “members of a political party.” A possible interpretation could be found in the characteristics of the respective survey population. Although we used the snowball technique to choose respondents, they might all belong to the same socio-economic strata of the researched societies. After all, party members do have family members and friends. Reminiscent of the findings for the professional categories, a minimum of all female social contacts could
“lend enough money to purchase a home”, “own a vacation home”, “invest in stocks and bonds” (all three in all ties less than 2%). In Ghana, friends (less than 1%) and acquaintances (less than 5%) are in the minority, who were ever “approved for a bank loan before.” Equally, no friend of Ghanaian women and only few acquaintances of Ghanaian (4.35%) and Tanzanian (0.91%) women earned more than the respective average worker.

Finally, here too, we find high percentages of social contacts who “know a lot about sports” for both genders in Ghana (in the “friend” category over 50%). Among acquaintances of women, none “knew a lot about sports.” Since sport and especially soccer in the year of the fielding of the questionnaire was ubiquitous in Ghana, this finding is not surprising.

Men’s family members, as might be expected, do not differ much from the women’s. In the Dominican Republic, the single biggest block of the relatives are “members in a political party” (14.31%) and “know how to use a computer” (11.8%). “Utilizing a computer” is also widespread amongst Ghanaian family members (37.72%). In Ghana and Tanzania a large number of family members (more than 13%) and friends (more than 53%) “Know a lot about sports.” Again, based on the timing of the data collection effort, and, in comparison with the women’s results this is not surprising. Many friends of Dominican male interviewees also are members of a political party (15.33%) and like their Tanzanian counterparts more than 14% “know how to use a computer.” Additionally, over 10% in the Dominican Republic and over 4% in Ghana earn more than the average employee. Further, a relatively (respectively) high number of friends in Ghana (about 5%), but especially in Tanzania (22.72%) are “members of a social networking sites.” Equal numbers and social resources can be found among the acquaintances of our respondents. “Knowing how to use a computer” (more than 13% in the Dominican Republic and Tanzania), in Ghana being “active in a political party” (more than 18%), and in Tanzania partaking in “online social networking” (more than 37%) does not differ too much from the “friend” and “relative” categories. A large number of Dominican relatives can “repair household items” (almost 16%) or “give good advice on work-related problems” (over 10%). In Ghana more than 10% “graduated
from college” and more than 8% could “offer employment.” The latter again could be seen as a confirmation of Granovetter’s theory.

It does not come as a surprise then that there are no big revelations on the other end of the scale. Again, a minimum of the male respondents’ social contacts “invest in stocks”, could “lend enough money to purchase a home” and were “ever approved for a bank loan” before¹. Amongst relatives and friends it appears to be uncommon to have “good contacts with the media” (less than 2% in the Dominican Republic and Ghana) or to “own a vacation home” (equal to or less than 1% in Ghana and Tanzania).

Gender-specific Social Resources in the Dominican Republic

Family members who “know a lot about sports” also “give good advice on personal issues” (Pearson correlation coefficient was computed to be 0.9654 with a 95% confidence interval of 0.9129 and 0.9865, while undirected $R^2$ correlation was calculated at 0.9321).

Family members whose salary is higher-than-average tend to have “good contacts with the media”² and “give good advice on work-related problems”³. Interestingly, we also found a high correlation between having “good contacts with the media” and “giving good advice on personal problems” among friends of Dominican women (Pearson correlation coefficient was computed to be 0.9621 with a 95% confidence interval of 0.9048 and 0.9852, while undirected $R^2$ correlation was calculated at 0.9256). The highest correlation we found for family members of Dominican male respondents was between “investing in stocks” and having “been approved for a bank loan” before (and with a Pearson correlation coefficient of 0.902 and the corresponding 95% confidence interval of 0.7647 and 0.961, and $R^2$ of 0.9136 still more likely than not). This correlation may suggest that people wealthy enough to invest part of their salary have a better chance to get approved for a bank loan.

¹ Less than 1 per cent of Dominican and Tanzanian acquaintances and friends, 1 per cent of Ghanaian friends and less than 4 per cent of Ghanaian acquaintances, less than 2 per cent of Dominican relatives
² Pearson correlation coefficient was computed to be 0.9726 with a 95% confidence interval of 0.9306 and 0.9893, while undirected $R^2$ correlation was calculated at 0.9460
³ (Pearson correlation coefficient was computed to be 0.975 with a 95% confidence interval of 0.9366 and 0.9903, while undirected $R^2$ correlation was calculated at 0.9506
Other than family members, of course, the connection between a person and their friends and acquaintances is always in question. Friends may be made at school or work according to the respective life stage or at sports clubs. This may be true for acquaintances as well, but they also just may live in close proximity, be working in shops we frequent, or walk their dogs on intercepting paths. So, if we have high correlations in these ties, it may well be that the social resource is related to the common denominator in the lives of the people considered. Friends of male Dominicans who “repair items around the house” may be co-workers (“giving good advice on work-related problems” (Pearson correlation coefficient of 0.9941, $R^2 0.9883$) or fellow members of a political party (Pearson correlation coefficient of Party Membership and Work Problems was computed to be 0.9678 (95% confidence interval of 0.9188 and 0.9874), $R^2 0.9366$; Pearson correlation coefficient of Party Membership and Household Repair was calculated to be 0.9701 (95% confidence interval of 0.9244 and 0.9883), $R^2 0.9412$). Likewise, acquaintances of male Dominicans partaking in our survey “go shopping in case of sickness” while also tending to “give good advice on work-related problems” (Pearson correlation coefficient of 0.988 (95% confidence interval located at 0.9692 and 0.9953), while $R^2$ was calculated to be 0.9762). Possibly the friends as well as the acquaintances are linked through the workplace with the respondents. Without collecting more data on the interviewees’ background and activities there is no way to determine if and which social resource might mirror what constitutes the link between two social contacts.

**Gender-specific Social Resources in Ghana**

In Ghana, family members of female respondents who earn more than the average Ghanaian also tend to have “good contacts with the media”, are “members of a political party” (for both the Pearson coefficient was calculated at 0.99 or $R^2$ at 0.9766). Those having “good contacts with the media” also appeared to be more likely “politically active” (Pearson coefficient of 1.0 or $R^2$ of 0.9226). Another triangle of high correlation was found between “investing in stocks, “owning a vacation home” and “medical advice” among family members (for each the Pearson correlation coefficient as well as $R^2$ were
computed to be 1.0). Perhaps, politics and the medical profession are prestigious in Ghana and earn higher salaries (see income correlations section below), which allows the investment in stocks or additional property.

Possibly due to the low number of female respondents in Ghana (we procured data from five Ghanaian women); we also found several very high correlations among the social resources provided by their friends. Those who were able to “lend enough money to purchase a home” were also more likely to have “been approved for a bank loan” in the past. While banks consider securities when giving away loans, it is less obvious why the “knowledge of government regulations” aids in the “procurement of a car” (for both correlations the Pearson correlation coefficient as well as \( R^2 \) were calculated at 1.0). We find a similar correlation among the social resources of acquaintances. Here a “bank loan in the past” and “knowing about government regulations” promises the “ownership of a car” (all three social resources with one another return a Pearson correlation coefficient and \( R^2 \) of 1.0).

In contrast, the social resources available from relatives of our male respondents appear humble. Those who could “offer employment” also tend to be able to “do repairs around the house” (Pearson correlation coefficient of 0.9894 and the respective 95% confidence interval at 0.9728 and 0.9959; \( R^2 \) of 0.9789). This may hint at the branch of work the offered job is categorized in. Furthermore, and less (statistically) remarkable, relatives who “go shopping for the sick” are more likely to “give medical advice” as well (Pearson correlation coefficient of 0.9551 and the respective 95% confidence interval at 0.8878 and 0.9824; \( R^2 \) of 0.9122). We encounter correlations with higher-than-average salaries in the “friend” category, but they are much lower (Pearson correlation coefficient of less than 0.95, \( R^2 \) less than 0.91) and suggest that “knowing how to use a computer” might be aiding higher income. Having been “approved for a bank loan in the past friends” tend to earn more than the average Ghanaian (Pearson correlation coefficient of 0.8787 with a 95% confidence interval at 0.7137 and 0.9513 and \( R^2 \) of 0.7721) and “know how to use a computer” (Pearson correlation coefficient of 0.945 with a 95% confidence interval at 0.8636 and 0.9784 and \( R^2 \) of 0.893). Evidently, the

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4 Pearson coefficient of 0.9507 with a 95 per cent confidence interval of 0.8772 and 0.9807 and \( R^2 \) of 0.9038
“investment in stocks” of acquaintances of our male interviewees tends to go along with “knowledge about financial matters” (Pearson correlation coefficient and R^2 of 1.0). It appears that Ghanaian males have much less access to profitable social resources in that, access to money or other forms of wealth are not gained through social contacts that “invest in stocks” or earn higher-than-average salaries. The reason for this discrepancy of the genders at least in the “family” category may be that it is the male who generally holds the wealth in a family. Thus female interviewees can assert access to social resources the male interviewee tends to hold himself.

Another possible and interesting perception into the everyday life of Ghanaians is the correlations between “giving good advice on personal as well as on work-related matters”, “college graduation” and “knowledge about sports.” Social contacts gained at the university may be the social contacts preferably sought on to give advice on personal or work problems and talk about sports (Pearson correlation coefficient and R^2 for College Graduation with all of these was calculated to be 1.0). Likewise, all involved social resources are inter-correlated with 1.0 (Pearson as well as R^2), thus not allowing to discern any direction or causation through the pairing of stronger and weaker correlations.

Income Correlation with Gender

As in the blue and white collar section, we only found noteworthy correlation of social resources with income in the Ghanaian data. This is partially due to missing data (Tanzania), but may also demonstrate different degrees of sensitivity across cultures. Income of family members of female respondents correlated strongest with earning more than the average Ghanaian (Pearson coefficient of 0.985 (95% confidence interval was calculated at 0.9616 and 0.9942), R^2 of 0.9695). Other social resources that correlated remarkably with income are: “owning a vacation home” and “investing in stocks”^5, being able to “give medical advice”^6, having “good contacts with the media”^7 as

^5 Pearson coefficient of 0.9738 with a 95 per cent confidence interval of 0.9336 and 0.9898 and R^2 of 0.9484
^6 Pearson coefficient of 0.97 with a 95 per cent confidence interval of 0.9242 and 0.9883 and R^2 of 0.9484
^7 Pearson coefficient of 0.9605 with a 95 per cent confidence interval of 0.9009 and 0.9845 and R^2 of 0.9226

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well as being a “member of a political party”\textsuperscript{8}. The first three social resources, especially, pertain to the wealthier social strata in the society and as such are not surprising correlations. The last three may suggest venues of high salaries. There were no remarkable correlations between income and other social resources found in other ties. Unfortunately, from this data, we cannot derive any conclusion as to where socio-economic status may be linked with access to special forms of social capital.

Gender-specific Social Resources in Tanzania

In this last sub-chapter we would like to present our findings from the data collected in Tanzania. Relatives of our female Tanzanian interviewees who “invest in stocks” are also likely to have “received a loan from a bank” before (Pearson correlation coefficient of 0.9898 with a 95% confidence interval at 0.9738 and 0.996; $R^2$ was calculated at 0.9797). Further, both social resources may indicate that the relative may “own a car” (Pearson correlation coefficient of 0.9832 with a 95% confidence interval at 0.9571 and 0.9935; $R^2$ was calculated at 0.9667 with Bank Loan; Pearson correlation coefficient of 0.9905; $R^2$ was calculated at 0.9811 with Stock Invest). As in Ghana, these associations suggest that a car in Tanzania may be a status symbol. Also interesting in terms of socio-economic status is the linkage between the ability to “offer employment” and “computer knowledge” (Pearson correlation coefficient of 0.9834 with a 95% confidence interval at 0.9576 and 0.9936; $R^2$ was calculated at 0.9787), given that about 80% of the Tanzanian workforce is employed in agricultural related fields and in 2009 only 1.5% of all Tanzanians had access to the internet. Nonetheless, friends who earn higher-than-average salaries tend to also know how to “use a computer” (Pearson correlation coefficient of 0.967 with a 95% confidence interval at 0.9168 and 0.9871; $R^2$ was calculated at 0.9351). These extraordinary salaries may be higher than may be intuitively assumed as friends who could “lend enough money to purchase a home” also are likely to “know how to use a computer” (Pearson correlation coefficient of 0.9784 with a 95% confidence interval at 0.9451 and 0.9916; $R^2$ was calculated at 0.9572).

\textsuperscript{8} Pearson coefficient of 0.96 with a 95 per cent confidence interval of 0.8997 and 0.9843 and $R^2$ of 0.9226
Being “informed about government regulations” and having been “approved for a bank loan in the past”, also tend to yield a “membership in a political party” for the acquaintances of our female interviewees. Apart from being interlinked themselves (a Pearson correlation coefficient of 0.9978 and $R^2$ 0.9957), these two social resources appear to support the “investment in stocks” (Pearson correlation coefficient of 0.9877 (95% confidence interval at 0.9685 and 0.9952), $R^2$ 0.9758 with Party Membership; Pearson correlation coefficient of 0.9938 and $R^2$ of 0.9875 with Government Regulation). Stocks are also highly correlated with the past approval for a loan (Pearson correlation coefficient of 0.9986 and $R^2$ of 0.9972). As mentioned before, this most likely reflects the banks’ standards of securing loans, if we assume that the investment in stocks is associated with general financial well-being. In obtaining a loan it might also be helpful to “know about government regulations.” This suggests a high correlation as substantiated with the calculation of the Pearson correlation coefficient of 0.9978 and $R^2$ of 0.9957 between these two social resources. Another triangle among the social resources of friends suggests that “political party membership”, the “knowledge about financial matters” and the “possibility to grant employment” are interrelated (all of these social resources, each connected to the two others showed a Pearson correlation coefficient as well as $R^2$ of 1.0). In short, all of these findings suggest that “party membership” or the “knowledge about governmental regulations” is crucial for the upper class. Lastly, “knowing how to use a computer” might be used by the acquaintances of our sample to “learn about government regulations” (Pearson correlation coefficient of 0.9953 and $R^2$ of 0.9906) and to visit social networking sites (Pearson correlation coefficient of 0.9969 and $R^2$ of 0.9938).

Like in Ghana, relatives of our male respondents who go “shopping in the case of sickness” also tend to “give medical advice” (Pearson correlation coefficient of 0.9804 (95% confidence interval at 0.9501 and 0.9924) and $R^2$ of 0.9611). Friends who “invest in stocks” tend to have been “approved for a bank loan in the past” (Pearson correlation coefficient of 0.9845 (95% confidence interval at 0.9604 and 0.994) and $R^2$ of 0.8917) is

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9 Pearson correlation coefficient of 0.9897 with a 95% confidence interval of 0.9736 and 0.996) and $R^2$ of 0.9795 for Government Regulation and Party Membership and 0.9979 Pearson correlation coefficient, $R^2$ of 0.99 between Party Membership and Bank Loan
a correlation that was also found in Ghana. Equally important for the acquaintances of male respondents: to “secure a bank loan” appeared to be their status as a (potential) employer (Pearson correlation coefficient of 0.9745 (95% confidence interval at 0.9353 and 0.9901) and $R^2$ of 0.9496). In both countries the investment in stocks, past bank loans and high incomes are rare social resources in all ties. It is not surprising than to find correlations in both countries that potentially not only reflect bank procedures, but also places these social resources within the realm of higher socio-economic strata.

**Conclusion**

In this chapter we have presented critique not only on the data, but also on our conception of the project itself. We find our results hampered with consequences of the data collection difficulties and missing values in the data. But despite the far from flawless process, we deem the insight that we gained valuable and informative. We there is benefit to continue to pursue research on social capital and its role in economic development on an individual level. For our next research project in this field we plan to combine the resource generator and Lin’s position generator. The combination of these two tools has served in past research and proved itself thereby very helpful as they counteract each other’s weaknesses. In the next chapter therefore, we will introduce the outset of our next research project on the role of individual access to social capital in economic development.
References

Erickson, Bonnie H. 2004, Report on Measuring the Social Capital in Weak Ties, University of Toronto, Canada, a report prepared for Policy Research Initiative, Ottawa, Canada


Van Der Gaag, Martin and Tom A.B. Snijders. 2004. The Resource Generator: Social Capital Quantification with Concrete Items