

Millionaires and Intellectual Capital: An Empirical Study

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Abstract: In this paper we present an application of the model of Intellectual Capital to the world of the very rich and millionaires. It is, we believe an important research topic, because in the last decade inequality grew, and Intellectual Capital became the most important economic asset. But no empirical studies exist to link the two phenomena. We applied our model to a set of football coaches, football being an industry that produces outlying incomes. We estimated the relation between a set of intellectual capital characteristics of those coaches and their incomes. We found that indeed, IC explains almost two thirds (63%) of the evolution of the very big salaries of those very rich people. Even if those results are interesting, and give an indication of the influence of IC in the success of rich people, they are only limited to a small sample of persons. Anyway, from our research we may infer that IC (social capital, human capital, and structural capital) plays a major role in defining the wealth of the top earners in the world. From this we may conclude that a policy of inequality reduction should take into account that intangible assets are at the base of those persons wealth. The study is original, because at least for our knowledge, it is the first in which the relation between IC and the wealth of millionaires has been tested. We hope to enlarge the study in the future in order to include the phenomenon of billionaires, as well.

Keywords: millionaires, intellectual capital, impact, empirical study

1. Introduction

In 2012, few would doubt about the socio-economic importance of Intellectual Capital (IC): It is well known that IC is extremely important in the success of organizations (Stewart, 1997); there is also evidence that countries with higher levels of IC constituents are more developed (Bonfour and Edvinsson, 2005); poverty may also be explained by the lack of IC (Sachs, 2006; Tomé, 2004). However, we do not know about any empirical work made on the impact of IC on millionaires. What is the influence of IC in the existence of very rich people? It is the gap we will try to begin to fill in this paper.

While there are a wide range of industries that could be analyzed in the world, we have chosen a small set of very well known people: football coaches. Indeed there is plenty research of football clubs, their performance and incomes (Barajas, Rodriguez, 2010; Szymanski, 2001). Others studies investigate intellectual capital of football clubs (Shareef, Davey, 2005). But there is a lack of researches that combine the IC and ability to become a millionaire through football. And we all know that football coaches, not to name football players are very wealthy people.

Therefore our research aims at investigating the dependency between income and some special kind of intellectual capital (that usually may be called "talent") of top football coaches that helped them to become famous and highly paid people. Because we cannot measure this talent directly, we use proxies of different kinds of intellectual capital: such as change in championships ranking, image in media, licenses, awards in World Cup and Euro Championship (performance of the club during the leadership dealt with the coach) to explain the evolution of the coaches' salaries. The results are interesting and impressive.

The paper is divided in three parts. In the first part we define the main concepts (IC, millionaires, and billionaires) and we expose briefly the main economic theories on those concepts and on their relation; we also describe some studies we know that are somehow related to our demarche and that helped us defining our model. In the second part we use regression analysis to assess the relationships among intellectual capital and income of football coaches. In the third part we present our conclusion, discuss the limitations of the study, propose policy guidelines and suggest further studies.

2. Concepts, theories, related studies

2.1 Concepts

Intellectual Capital (IC) is defined as a multidimensional concept with roots in accountancy theory and that encompasses Human Capital (competences), Social Capital (brands) and Structural Capital (routines) (Edvinsson and Malone, 1997). IC is strongly related with Knowledge, even if it defers from it. Knowledge is “understood information” (Maurer, 1998) and a Knowledge worker or a Knowledge company are the ones who possess intensively Knowledge (Nonaka and Takeuchi, 1995). Knowledge is in general analyzed in a management perspective, the Cycle of Knowledge transformation (Nonaka and Takeuchi, 1995) and the creation and renewal of Knowledge (Kianto, 2007) being two fundamental parts of that analysis. Knowledge Management (KM) is the activity and science of managing knowledge. Interestingly though IC analysis has its roots on accounting problems and KM analysis has its roots on management problems.

A millionaire is someone whose wealth is of more than 1 million dollars per year. A billionaire would someone who has a wealth of more than one thousand million dollars per year. As we will see in the next section, millionaires and billionaires are explained by the economic theory.

2.2 Theories

The existence of very rich people may be explained by several factors (Tomé, 2012). Those factors relate to microeconomics or to macroeconomics. In relation to microeconomics, the type of market (Frank, 2005), the political power (BBC, 2011), crime activities (Barry, 2000, Le Grand and al, 2008), the perceived uniqueness linked to brands and marketing (Goal, 2012), technology (Rosen 1981), globalization (Community Banker) and luck (Daily Mirror, 2012) are all characteristics of market or of economic agents that may favor the existence of billionaires or millionaires. In relation to macroeconomics, we know that different ideologies, view the phenomenon of the very rich very differently: from encouraging Liberalism (Smith, 1977, Mill, 1848 Marshall, 1890) to forbidding Socialism (Marx, 2008) passing by understandable Conservadorism (Pope Leo XIII, 1891) and taxing Social Democracy (Keynes, 1936).

We also should add that Intellectual Capital explains the wealth and prosperity of people and organizations. In the case of people wealth accumulation may be related to Human Capital and Social Capital. People with more education, experience or a special talent – all forms of Human Capital – may become millionaires or billionaires by accumulation of wages and other forms of income. But, also, in the business world contacts matter, and the image the individual has or its image as a brand may and can increase decisively the income he receives. A high income may of course be translated in millionaire or billionaire wealth.

In the case of organizations IC may influence the stock market, by increasing the market value of companies. Indeed the most basic definition of IC is to compare it with the difference between market value (defined as shares) and book value (defined as assets minus liabilities) (Edvinsson and Malone, 1997). But IC can also increase the value of company because it increases the organizational knowledge, which in turn increase the value of companies regardless of them having shares or not (Bontis, 1999, Youndt and Scott, 2004).

Tomé (2012) concluded that, on one hand, billionaires owe their fortunes to the fact that they use the knowledge and IC of others because they own companies like Microsoft, WallMart, HLMV, Google, or Facebook. But, on the other hand, megastars or millionaires have smaller fortunes than billionaires and derive their wealth from the global exploitation of some specific skill in the domains of music, sport, or literature. Finally, both kinds of persons are helped by the existence of mechanisms of knowledge sharing, creation, storage and transfer that are characteristic of the Information Age and Knowledge Era. Therefore, the next years will probably witness an increase the millionaires and billionaires phenomenon (Community Banker, 2008).

2.3 Related studies

However, very few empirical studies have been made on the relation between intangibles and rich people, especially in football sphere. Most of the analysis on rich people relate to definition of the volume of wealth of those individuals in ranking (Forbes, 2012). Those rankings are accompanied with a brief corporate analysis of the billionaires’ companies and main investment interests; in fact what is done is a business description in

the name of several dozens of extremely wealthy individuals. One of the interesting phenomena about those billionaires is that sometimes they even don't know how much they are worth, as Atkinson described in an old book – "if they were to be giants, their high would be in the clouds and they would not know their precise dimension themselves" (Atkinson, 1984). Some much bigger rich lists (Sunday Times, 2012) also describe the wealth of millionaires, like sport celebrities, and musicians etc. In both those types of analysis elements of IC are mentioned, but not scientifically.

While intellectual capital and wealth have become favorite and popular topics of discussion, their interdependence in case of individuals is still an unexplored question. After the literature review we found out that there are plenty researches about the influence of football clubs performance on their incomes. Thus, the paper of Barajas and Rodriguez in International Journal of Sport Finance describes a study of salaries in Spanish football clubs in crises (Barajas, Rodriguez, 2010), while Szymanski dedicated his paper to income inequality of team sports, in particular football (Szymanski, 2001). However, all those papers remain unclear on whether the players' and coaches' intellectual capital influence club incomes or if we can explain those incomes using only some tangible factors. One of the reasons because a study on intangibles is difficult to make on football, it is because we have to take into consideration the football clubs, the people wealth (generally ignored) and the intellectual capital (which is also difficult to define).

Although there are a lot of papers dedicated to intellectual capital of countries and companies, intellectual capital of football clubs rarely becomes the object of study. We would like to underline the paper of Shareef and Davey that discusses the IC disclosure by football clubs (Shareef, Davey, 2005). Also, Gurel and Ekmekci measure the IC of Turkish football clubs as a whole, regarding football club as a company. But there is the absence of researches connected with intellectual capital of key football club stakeholders. Nobody tried to decompose, classify and measure the individual intellectual capital of players or coaches. However, given the nature of high salaries that are paid in football, the investigation of the connection between special intellectual capital component such as talent and the wealth of football coaches becomes to be an extremely important and practice-oriented task.

2.4 Justification

The literature review just presented gave us the understanding that we know no micro-econometric study relating IC with the wealth of billionaires or millionaires. The omission is almost intriguing because it is very well known that the elements that constitute IC and knowledge are decisive to the efficiency of the companies that the billionaires possess; and also, as we already said, it is known that specific IC is the root of the wealth of millionaires. In our opinion the omission might be explained by three main reasons. First, it is very difficult to find reliable data on billionaires and millionaires. Second, the phenomenon of IC and billionaires is recent. Studies on IC and knowledge are usually made with the support of entities (private or public); but regarding billionaires no company would command the study, and even in the academic world it would seem to be the work of outsiders; only if Forbes Magazine would decide to fund the study, it would be made. In fact, the study of the wealth of millionaires and billionaires would be an inquiry at the heart of the winning capitalism of the global 21st century. And as all the studies that are socially challenging, in any epoch, is hard to do. However given the actual economic trends: globalization, dominance of the economy by knowledge driven services, networks and social networks, BRICs, the study has all the logic. So we decided to make a first step in the correct direction.

3. Variables and model

3.1 Modeling IC and wealth

The analysis of existent theoretical and empirical studies dedicated to wealth, intellectual capital and sport economics allows us to determine the unexplored area. Therefore the main purpose of this paper is to determine how the talent of football coaches' (which we consider an intangible asset and a proxy of the coaches' intellectual capital) is transformed into wealth. According to the purpose of the research we want to test the following hypothesis: Is the talent of football coaches transformed into wealth?

For the measure of wealth we use the annual salary, measured in millions of euro.

On IC, all the existent definitions and decompositions underline its heterogeneity in one hand, and the lack of a generally accepted measurement method in the other hand. Accordingly, the type of individual intellectual capital named “talent” also cannot be measured primarily by generally accepted integral indicator. So its quantity and quality can be expressed only by approximate indicators. In our study, the choice of indicators was based on the review of sport cites, expert interviews and the review of empirical studies dedicated to financing of football clubs (e.g. Barajas, Rodriguez, 2010). After, all the selected variables were divided into proxy indicators of coach’ talent and control variables. Next we excluded those proxies that couldn’t be found in publicly available sources. Table 1 includes the final set of proxies we end up using.

Table 1: Chosen indicators determining the wealth of football coach

Proxy indicators of talent	Control variables
Difference of team places in national league during the year	Wins in championships in previous years
Leading places in national championships during the year	Former football player
Image in media	Played for the same team
	Age
	Place of birth
	Team players’ quality

3.2 Chosen indicators

The chosen indicators are described in more detail below.

Proxy variables:

- *Difference of team places in national league during the year.* If coach has talent, his team will succeed in different championships during the period of his working. We could take into account national league or different international championships such as the UEFA cup, the Europa League, etc. But we have set of reasons to exclude them:
- *First of all we wanted to create a homogeneous sample, so we took the same number of clubs in each country. As for international championships, counties have different quotas, so the number of chosen clubs could differ from country to country and we couldn’t took great number of clubs from the same country.*
- *Secondly, international ratings, such as UEFA ranking, include club results for the previous years (for example, UEFA includes results for the previous five year and 20% of country coefficient). It means that a current low international rating may be the result of previous coach work. But national league represent results of only one year.*
- *Another one reason is for some clubs the national championships is more important than international competitions. Some English and Spanish clubs use the reserve team for international games in order to save the energy of first team for national cups.*
- *International cups have fewer games during the year in comparison with national ones. So the coach’ talent can be better seen in national league results.*

In order to use the variable in regression, we have made a dummy variable with the meaning “1” if club place became higher after the year of coach work and the meaning “0” otherwise.

- *Leading places in national championships during the year.* The reasons to take into account national league were described below. We created dummy variable that equals “1” if the team took places from first to third and equals “0” otherwise.
- *Image in media.* Talented coaches are famous and charismatic persons that are often discussed in media resources by pundits and fans. We took into account the recognition of their professional football and management skills (measured by the number and quality of trophies won in his career), the fans opinion, the presence of club scandals, rumors and image as a whole. So we measured the frequency of coach name mention in media and give the value from “1” to “10” for each coach. “1” means that coach is unpopular in media sphere while “10” indicates his extreme popularity. Then we transformed these categorical variables into a dummy variable: if the value of image exceeds the median value then dummy variable has value “1”, otherwise it has value “0”.

Control variables:

- *Wins in championships in previous years.* The current big salary of a coach may be determined by his success in previous years. But that result depended on a big variety of factors, not only on talent. That is why we should exclude previous results. We created a dummy variable that equals “1” if the coach won any championships and equals “0” otherwise.
- *Former football player.* The talent of a football coach doesn’t depend on the fact that he was a professional player earlier (the most striking example is José Mourinho, who is one of the best and high-paid coaches). But if the coach was the high-paid player, he has a positive image in football sphere, and he may expect a higher starting salary. We used a dummy variable that equals “1” if the coach was a professional player in the past and equals “0” otherwise.
- *Played for the same team.* The reputation and image of a football player can increase his future salary as a coach in the same club. But, if the player became a coach and was demanded outside his team, this fact also shows his quality. So this factor can influence the salary but not necessarily connected with talent. We created dummy variable that equals “1” if the coach played for the same team during his career as a player and equals “0” otherwise.
- *Age.* Age has strong correlation with experience and therefore influences the salary positively.
- *Place of birth.* The place of birth to some extent determines education, culture and therefore the ability to earn money.
- *Team players’ quality.* This It is the main control variable because the team results that we used as a proxy for coaches’ talent depended also on the players of the team. The proxy of players quality is their value on the transfer market. So we have measured the mean value of players transfer costs. We

3.3 Sample and data

The hypothesis was analyzed on the sample of European top clubs. We have selected clubs that meet the following requirements:

- The clubs operate in Russia, England, Germany, Spain, Italy, France. The choice of countries was based on football development and popularity.
- The clubs achieved places in national championships from the 1st to the 10th. This choice was made in order to analyze the most talented coaches.
- The date relate to 2011, because of data availability.

The final sample that met all requirements consists of 60 coaches.

We used information from official clubs websites and the following websites: <http://www.uefa.com/>, <http://www.fifa.com/>, <http://www.francefootball.fr>, <http://www.guardian.co.uk/>, <http://www.gazzetta.it/>, <http://www.kicker.de/>. For transfer cost We used the data from www.transfermarkt.de website.

3.4 Specification

Thus, our model has the following specification:

$$\text{SALARY} = c + \alpha_1 \cdot \text{PLACE} + \alpha_2 \cdot \text{IMAGE} + \alpha_2 \cdot \text{DOWN} + \alpha_3 \cdot \text{UP} + \beta_1 \cdot \text{PLAYERS} + \beta_2 \cdot \text{AGE} + \beta_3 \cdot \text{BIRTH} + \beta_4 \cdot \text{FPLAYER} + \beta_5 \cdot \text{SAMETEAM} + \beta_6 \cdot \text{WINS} + \sum \gamma_i \cdot D_i$$

where

- SALARY** is coach’s salary in 2011 year, million euros;
- PLACE** equals 1 if the club has one of 3 top places in national league in 2010/11 season and 0 otherwise;
- IMAGE** equals 1 if the coach is popular in media and 0 otherwise;
- DOWN** equals 1 if the club’s position in national league lowered and 0 otherwise;
- UP** equals 1 if the club’s position in national league improved and 0 otherwise;
- PLAYERS** represents the average value of the club’s players, million euros;
- AGE** is the coach’s age;

BIRTH equals 1 if the coach was born in one of 6 countries with the highest UEFA country coefficient rankings and 0 otherwise;

FPLAYER equals 1 if the coach was a professional football player and 0 otherwise;

SAMETEAM equals 1 if the coach played for this club when he was a football player and 0 otherwise;

WINS equals 1 if the coach has won national championship ever before and 0 otherwise;

D_i dummy variables for countries where the clubs plays.

4. Results

4.1 Descriptive statistics

In Table 2 we present the descriptive statistics for chosen indicators. They show that in 2011 the considered top coaches received a salary from 0.4 to 14.8 million euros. On average, the top coaches were 50 years old and in received 3 million euros. Most football top coaches were born in European countries with high UEFA country coefficient rankings, had been football players and had the experience of winning the championships. Only a quarter of coaches worked with a team in which they played in the past, but almost all (93%) had been professional footballers. One third of the coaches had a good media image.

As far as we consider the clubs in which the top coaches worked, 27% of them had one of 3 top places in national championship in 2011 year. You can also see that the championship 2011/12 season was competitive for the clubs and only 11% of the teams have not changed their positions. The number of teams in the championship table rose approximately equal to the number of teams that worsened their position.

The average value of the players varies considerably. On the one hand it shows how different the potential of the clubs is (regardless of coach's talent), and on the other hand it evidences about diverse financial capacities of considered clubs.

Table 2: Descriptive statistics for variables used in the model

	SALARY (a)	AGE (b)	BIRTH(c)	WINS (c)	SAMETEAM(c)	FPLAYER (c)
Mean	2.97	50.67	0.77	0.42	0.25	0.93
Median	2.10	49.00	1.00	0.00	0.00	1.00
Maximum	14.80	70.00	1.00	1.00	1.00	1.00
Minimum	0.40	39.00	0.00	0.00	0.00	0.00
Std. Dev.	2.81	7.82	0.43	0.50	0.44	0.25
Skewness	2.53	0.63	-1.26	0.34	1.15	-3.47
Kurtosis	9.85	2.53	2.59	1.11	2.33	13.07

	IMAGE (c)	PLACE (c)	DOWN (c)	UP (c)	PLAYERS (a)
Mean	0.32	0.27	0.42	0.47	5.59
Median	0.00	0.00	0.00	0.00	3.64
Maximum	1.00	1.00	1.00	1.00	26.04
Minimum	0.00	0.00	0.00	0.00	0.40
Std. Dev.	0.47	0.45	0.50	0.50	5.43
Skewness	0.79	1.06	0.34	0.13	2.23
Kurtosis	1.62	2.11	1.11	1.02	7.93

Note: (a) in million euros. (b) in years (c) dummy variable

4.2 Correlation and regression

Correlation analysis (Table 3) shows that there is no high correlation between independent variables (all coefficients are lower than 0.6), therefore they all could be included into the model.

Table 3: Correlation analysis of variables

	SALARY	PLAYERS	PLACE	IMAGE
SALARY	1.00	0.75	0.28	0.59
PLAYERS	0.75	1.00	0.59	0.59
PLACE	0.28	0.59	1.00	0.32
IMAGE	0.59	0.59	0.32	1.00
AGE	0.21	0.13	0.08	0.03
BIRTH	0.02	0.05	0.07	0.04
DOWN	-0.23	-0.03	0.18	-0.21
FPLAYER	-0.35	-0.26	-0.14	-0.25
SAMETEAM	-0.07	0.00	-0.09	0.10
UP	0.28	0.03	-0.26	0.23
WINS	0.46	0.51	0.48	0.59

	AGE	BIRTH	DOWN	FPLAYER	SAMETEAM	UP	WINS
SALARY	0.21	0.02	-0.23	-0.35	-0.07	0.28	0.46
PLAYERS	0.13	0.05	-0.03	-0.26	0.00	0.03	0.51
PLACE1011	0.08	0.07	0.18	-0.14	-0.09	-0.26	0.48
IMAGE	0.03	0.04	-0.21	-0.25	0.10	0.23	0.59
AGE	1.00	-0.05	-0.12	-0.06	-0.41	0.20	0.22
BIRTH	-0.05	1.00	-0.01	0.17	0.05	-0.12	0.07
DOWN	-0.12	-0.01	1.00	-0.05	0.21	-0.79	-0.03
FPLAYER	-0.06	0.17	-0.05	1.00	0.15	-0.02	-0.32
SAMETEAM	-0.41	0.05	0.21	0.15	1.00	-0.08	-0.02
UP	0.20	-0.12	-0.79	-0.02	-0.08	1.00	0.09
WINS	0.22	0.07	-0.03	-0.32	-0.02	0.09	1.00

The model was tested using heteroscedasticity robust ordinary least squares method. Table 4 shows the results (proxy indicators of talent are given in bold). Adjusted R-squared of the model is 0.64.

Two of four variables of interest (an improvement in the championship table and coach's image in media) have a significant and positive influence on coach's salary. Whereas lowering the position of the club does not considerably affect the coach's wealth. Also the absolute measure of club's position is of no importance to assess the success of the coach's work.

One of the control variables - average value of club's players - is of the utmost importance and has significant positive impact on coach's salary. This variable enables us to control the difference in clubs' financial capacities. In addition, we found the country-specific feature: salary of football coaches working with the Italian clubs is lower than in other considered countries.

Table 4: Regression results

Variable	Coefficient	Std. Error
C	-10.20	10.21
PLACE	-0.69	0.99
UP	1.34*	0.81
DOWN	0.32	0.66
IMAGE	0.98*	0.57
PLAYERS	0.36**	0.08
AGE	0.45	0.41
BIRTH	0.01	0.74
FPLAYER	-1.19	1.53
SAMETEAM	-0.45	0.68
WINS	-0.12	0.75

Variable	Coefficient	Std. Error
RUS	-0.93	1.02
FRA	0.31	1.10
GERM	-0.59	0.77
ITALY	-1.39*	0.80
SPAIN	-0.15	0.87

** indicates significant at the 1% level; * indicates significant at the 10% level

5. Concluding comments

5.1 Conclusions

The importance of IC has a cause of wellbeing and economic prosperity is undisputed nowadays. However empirical studies are lacking to illustrate the reality, In particular, empirical studies on the top end of the wealth spectrum are inexistent. This reality fact is amazing because globalization creates the conditions to the increase in the number of very rich people and because inequality is becoming a more serious problem every day.

In consequence we made a study on football coaches and concluded that a set of intangible variables explains almost two thirds of the coaches salary. Given the very high value of the salary we believe it will be transformed in wealth and that those coaches are potential millionaires. In the specific case, the value of the clubs players was found to have a positive and very significant effect on the coach's wealth; other important explanatory factors whereas the coach's public image, the fact that the club went up in the classification in the league and the fact that he worked in Italy have also significant positive effects.

5.2 Social interest and suggestions for further research

We find very interesting that variables linked to the professional activity of millionaires may explain so well the fortunes of these people. We would like to continue the study by enlarging the analysis to other types of people, namely football players, tennis players, fashion designers, fashion models, artists, Formula 1 drivers, singers, politicians or business men. We would be able then to explain the social and economic rise of those persons: a fact that usually can be attributed to luck and that may generate social envy.

5.3 Limitations

This study was only limited to a small sector of activity (football), in an economic year (2011), using data on 60 persons (coaches). We expect similar patterns to exists over the 10 to 25 million billionaires that are said to exist.

5.4 Policy guidelines

We believe that in the next few years the very rich phenomenon will become more and important. Governments should make a policy on those cases. That policy should relate to attractiveness, investment and tax. If intangible are said to be the core of the cause of wealth, they should be the basis of those policies. In our case, the football coaches should not be analyzed on their income, but in relation to the variables that explain their income: player's value, image, upward mobility of club, and place of work (namely Italy).

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