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EDITORIAL

After seven years of regular bi-annual publishing, our *Journal of Economic and Social Development* changes the focus to a resilient society's specific field. Though economic and social development is still the most critical issue in all countries, we decide to follow near dramatic changes that influence social and economic spheres. As you perhaps know, the Journal is not open to delegates of the esd-Conferences only. Still, we accept the papers from all academicians, with no restrictions at all. Authors of selected papers come from different economic and social environments and have different backgrounds as well as various academic education. That diversity is an excellent foundation for exciting articles. We hope that readers will recognize the values promoted by the Journal and support its development. Our contributors can continuously share the recent research results with us and suggest their papers for our next issues. Together we can help the *Resilient Society, Journal of Economic and Social Development*, grow in quality and academic standards.

Marijan Cingula, Editor in Chief

PREDICTING THE DEVELOPMENT OF VOLUNTARY PENSION FUNDS IN SERBIA BY APPLYING THE MATHEMATICAL METHOD OF LINEAR REGRESSION

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ABSTRACT

The introduction of private pension funds, which operate with the state pension fund, is the essence of the reform of the pension system in Serbia. Private pension funds are based on voluntary benefits. Thus, the functioning of the pension system takes place in three interconnected processes: payments to a voluntary pension fund, investment of free funds, and ultimately programmed payments – pensions. Stability in the voluntary pension funds and predictability of payments allow the quality of investment portfolio to be formed and achieve a long-term yield of investment. In this work we implement the method of least square approximation for data processing and a mathematical method of linear regression, which give a link between the observed size, in our case, the number of fund members, the average salaries in Serbia and the size of Fondex, and to be used to predict the number of fund members depending on other sizes. Based on the data obtained by approximation function we can estimate number of fund members, in dependence of average salary and size of FONDEX.

Keywords: pension system, voluntary pension funds, linear regression

JEL: C38, G11, G23, J32

1. INTRODUCTION

The reform of the pension system in Serbia, which has been going on for years, is yielding results because the state participates in the financing of pensions, where the average state pension was 26,738.00 RSD in February 2018¹ and 28,216.00 RSD in February 2019². Mandatory and voluntary pension insurance operates in Serbia. The pay as you go financing system can work well if the national economy is on the rise and when the number of employees is significantly higher than the number of retirees. If there is no economic self-sustainability of the public pension fund, financed according to the pay as you go principle, the state inevitably intervenes as a financier using general budget funds, and if they are insufficient, it uses special taxes on tobacco, alcohol, gasoline, luxury goods, etc. (Jelena Kočović, Predrag Šulejić, Tatjana Rakonjac Antić 2010, p.493 [1]). Private pension funds function as a fully funded financing system, often called a capital accumulation system or a system of capitalized funds. Basically, the amount of pension compensation depends on the amount of accumulated premiums (contributions) and the return on invested premiums (contributions). (Jelena Kočović, Predrag Šulejić, Tatjana Rakonjac Antić, Osiguranje 2010, p.493 [1]). At the end of the fourth quarter of 2019, 201,587 users³ were in the accumulation phase. It should be noted that the membership in the fund is divided into two phases - the accumulation phase (the period in which the funds are paid) and the withdrawal phase (the period when the member withdraws

¹http://www.croso.gov.rs/lat/Statistika/Prosecna_zarada_penzija/ (accessed June 16, 2018).

²http://www.croso.gov.rs/lat/Statistika/Prosecna_zarada_penzija/ (accessed March 07, 2020).

³https://www.nbs.rs/internet/latinica/62/62_2/dpf_04_19.pdf p.9

the accumulated funds)⁴. The stability of inflows into voluntary pension funds and the predictability of payments enable the formation of a quality investment portfolio and the realization of a long-term return on investment. (Ivan Radojković, Boban Gajić 2017, p.34 [7]). The strategic goal in this area is to introduce a healthy multi-pillar pension system.(Ivan Radojković 2012, p.41 [2]).

2. CHARACTERISTICS AND SIGNIFICANCE OF VOLUNTARY PENSION FUNDS

The enactment of the Law on Voluntary Pension Funds and Pension Plans, adopted in September 2005 - which entered into force on 1 April 2006, with its first amendment on 7 May 2011 - provided the legal framework for pension reform. in Serbia. This law introduces the third pillar of pension insurance. Private pensions are completely independent of state pensions and are based on the principle of personal accounts. The funds of the private pension fund are invested in financial instruments that provide portfolio optimization, ie. give the best ratio of investment risk and rate of return. Voluntary pension fund funds are invested in accordance with the following investment principles prescribed by law:

- 1) *the principle of security*, which is achieved by investing in securities of issuers with a high rating;
- 2) *the principle of portfolio diversification*, which is achieved by investing in various financial instruments (government bonds, corporate bonds, treasury bills, shares, bank deposits, mortgage bonds, etc.). By applying different quantitative methods, horizontal diversification is performed, ie. the selection of specific securities within different types of instruments on offer. The most important issuers of financial instruments are the state, commercial banks, companies, and local self-government;
- 3) *the principle of maintaining liquidity*, which is achieved by investing in securities that can be quickly sold and bought at a stable price. The fund's goal is to have a sufficient percentage of liquid financial instruments in its portfolio to be able to meet its obligations at any time⁵.

Articles 31, 32, 33 and 34 of the Law on Voluntary Pension Funds and Pension Plans ("Official Gazette of RS", no. 85/2005, 31/2011), precisely define where the assets of a voluntary pension fund can be invested. The members of the Fund themselves choose the Fund to which they will pay the money, the manner and amount of payment, as well as the manner of payment of the pension. There are currently four voluntary pension fund management companies operating in Serbia⁶, which manage seven voluntary pension funds⁷. Fund members can start withdrawing funds at the age of 53 or 58, depending on when they joined the Fund⁸. The data in the table indicate solid returns of funds, which indicates that the funds place the collected funds well.

Table following on the next page

⁴https://www.nbs.rs/internet/latinica/62/62_2/dpf_04_16.pdf p.12

⁵http://www.dunavpenzije.com/saznajte-vise/investiciona-politika/Investiciona_nacela (accessed April 27, 2017).

⁶https://www.nbs.rs/internet/cirilica/62/62_pf.html (accessed May 10 2017).

⁷<http://www.mojnovac.rs/fondovi.1.html> (accessed May 10, 2017)

⁸<http://www.dunavpenzije.com/vesti/stupile-na-snagu-izmene-i-dopune-zakona> (accessed May 10, 2017).

Table 1: Number of members, assets and rates of return for voluntary pension funds operating in Serbia⁹ (Source: Statistical Anex of NBS for December 2019.)

| Fund | Members | Assets (in millions of RSD) | Yield (2019) |
|------------------------|----------------|------------------------------------|---------------------|
| Generali Basic | 46535 | 13.075,8 | 9,14% |
| Generali Index | 4966 | 1.095,6 | 8,34% |
| Raiffaisen Future | 35064 | 5.459,9 | 4,87% |
| Raiffaisen Euro Future | 4464 | 225 | 2,91% ¹⁰ |
| DDOR GarantEkvilibrio | 53517 | 6.050,3 | 5,63% |
| DDOR GarantŠtednja | 19287 | 1.328,4 | 7,85% |
| DUNAV | 87195 | 18.010,5 | 6,80% |

Yield rates of voluntary pension funds are also favorable if the exchange rate movements during the last year are taken into account. On January 3, 2019, 1 euro amounted to 118.3439 dinars¹¹ and on December 31, 2019, 1 euro amounted to 117.5928¹². As a percentage, the fall of the euro is 0.64%, while the annual inflation in 2019 was 1.9%¹³. Based on the information from Table 2, positive trends can be observed in the growth of the Fund's net assets as well as in the number of beneficiaries. The influence of various factors in society on the development of pension funds, as well as the possibility of predicting development in this domain, are the subject of a number of papers from different countries and parts of the world, on which we based our research in this paper (H.C. Benediktsson, T.T. Gerbertsson and J.M. Orszag, 2001 [3]; D. Blake, 2004 [8]; S. Chlon, 2002 [9]; W.L. Dellva and G.T. Olson, 1998 [10]; R. Otten and D. Bams, 2002 [11]; A.F.M. Shamsuddin, 2001 [14]; A. Kabašinkas, K. Šutiene, M. Kopa and E. Valakevičius, 2017 [16]; C. Marti, J.C. Matallin and M.A. Fernandez, 2009 [17], J. Bikker, O.W. Steenbeek and F. Torrachi, 2011 [20], Ch. Cheng and F. Uzelac, 2016 [21], W. Gerke, F. Mager, T. Reinschmidt, C. Schmieder, 2008 [22]).

Table following on the next page

⁹<https://www.raiffeisenfuture.rs/fondovi/euro-future/euro-future/prinosi.125.html> (accessed March 10, 2020)

¹⁰<https://www.raiffeisenfuture.rs/fondovi/euro-future/euro-future/prinosi.125.html>, (accessed March 10, 2020)

¹¹<https://www.kamatica.rs/kursna-lista/nbs/2019-01-03> (accessed March 08, 2020).

¹²<https://www.kamatica.com/kursna-lista/nbs/2019-12-31> (accessed March 08, 2020).

¹³<http://www.cekos.rs/indeksi-potro%C5%A1a%C4%8Dkih-cena-u-2019-godini> (accessed March 08, 2020).

Table 2: Key indicators of voluntary pension funds in Serbia development¹⁴

| Indicators | Companies for managing voluntary pension funds | Voluntary pension funds | Members | Contracts | Net estate of funds in millions RSD ¹⁵ |
|------------|--|-------------------------|---------|-----------|---|
| 2010 | 6 | 8 | 166780 | 220451 | 9.862,7 |
| 2011 | 6 | 9 | 174868 | 234405 | 12.452,3 |
| 2012 | 5 | 9 | 179823 | 240369 | 16.011,3 |
| 2013 | 4 | 6 | 183508 | 244462 | 19.007,7 |
| 2014 | 4 | 6 | 187997 | 252072 | 23.565,3 |
| 2015 | 4 | 7 | 190492 | 258680 | 28.874,8 |
| 2016 | 4 | 7 | 183553 | 250460 | 32.790,1 |
| 2017 | 4 | 7 | 185445 | 253900 | 36.200,0 |
| 2018 | 4 | 7 | 192295 | 261726 | 40.185,0 |
| 2019 | 4 | 7 | 201587 | 275833 | 45.245,5 |

3. LINEAR REGRESSION

By the term linear regression (O.David, 2017 [4]) we mean any modelling of the relationship between a quantity, which we call a dependent variable (we can denote it by y) and one or more quantities, which we call independent variables (we can denote them by $x_1, x_2 \dots x_n$), so that that model is a linear dependence on independent variables¹⁶, forms

$$y = a_1x_1 + a_2x_2 + \dots + a_nx_n + b,$$

where $a_1, a_2 \dots a_n, b$ are real numbers. If the dependence is on several independent variables, the process is called multiple linear regression. If the dependence of the variable y on only one independent variable x

$$y = ax + b,$$

then it is a simple linear regression.

Linear regression is easy to use in practical applications, because models that linearly depend on their unknown parameters are easier to model than models with nonlinear dependence on parameters. Most applications of linear regression fall into one of the following two types:

- If the goal is prediction, linear regression is used to determine the predictive model according to the considered data set of values of dependent and independent quantities. When the appropriate model is obtained, then the corresponding value of the dependent variable y can be determined for some new values of the independent variable x .
- If the goal of regression analysis is to quantify the strength of the relationship between the dependent variable y and each of the independent variables $x_1, x_2 \dots x_n$. In this paper, we will use the first approach, using an approximation procedure, known as the least squares method (discrete mean square approximation).

The least squares method (discrete mean square approximation) (G.V. Milovanović 1991 [5]) belongs to the so-called the best approximations, ie. approximation methods in which the criterion is the minimization of the error according to one of the norms.

¹⁴https://www.nbs.rs/internet/latinica/62/62_2/.

¹⁵Source: National Bank Serbia

¹⁶https://sr.wikipedia.org/sr-ec/Linearna_regresija, (accessed April 20, 2020).

Specifically, this is the norm L^2 , ie. the total sum of the squares of the errors in the approximation nodes is minimized (G.V. Milovanović, M.A. Kovačević, 1991 [6]). We also have had, on our minds, some results of previous considerations regarding predictions and risk models (T.C.Wong, C.H.Hui, C.F.Lo, 2010 [18], A.Amendola, M.Restaino, L.Sensini, 2011 [19]).

4. MAIN RESULTS

In this paper, we applied the method of linear regression to the given data from the following table, which shows the values of the average salary in Serbia, the value of FONDEX, as well as the number of fund members in a period of 5 years (2015-2019).

Table 3: Data for the Republic of Serbia for the period 2015-2019

| Year | Average salary | FONDEX | Fund members |
|------|----------------|---------|--------------|
| 2019 | 54.908,25 | 3064.86 | 201587 |
| 2018 | 49.642,59 | 2862.92 | 192295 |
| 2017 | 47.887,67 | 2713.39 | 185445 |
| 2016 | 46.836,75 | 2592.50 | 183553 |
| 2015 | 44.436,50 | 2407.45 | 190490 |

We first applied a simple linear regression, to determine the dependence of the number of fund members on the average salary, and then a simple linear regression to arrive at a relationship between the number of fund members and FONDEX. Finally, we received a complex, multiple linear regression, to determine the dependence of the number of fund members on both the average salary and the FONDEX. The obtained dependences are given in the next two sections, together with the prediction tables.

4.1. Simple linear regression

Based on the data from Table 3, where we take the number of users for the independent variable (y), and as the dependent variable (x) the average salary, we will apply the procedure of forming a linear regression approximation function, form

$$\varphi_1(x) = a + bx,$$

by the method of least squares. We will start from the initial condition, that the error of approximation in the nodes is equal to zero, ie. $\varphi_1(x_k) = y(x_k)$ ($k=1, \dots, n$). We have system of linear equations

$$\begin{aligned} \varphi_1(54.908250) &= a + b \times 54.908250 = 201587 \\ \varphi_1(49.642590) &= a + b \times 49.642590 = 192295 \\ \varphi_1(47.887670) &= a + b \times 47.887670 = 185445 \\ \varphi_1(46.836750) &= a + b \times 46.836750 = 183553 \\ \varphi_1(44.436500) &= a + b \times 44.436500 = 190490 \end{aligned}$$

If we transform this system into a matrix form, we have

$$\underbrace{\begin{bmatrix} 54.908250 \\ 49.642590 \\ 47.887670 \\ 46.836750 \\ 44.436500 \end{bmatrix}}_A \times \underbrace{\begin{bmatrix} 1 \\ x \end{bmatrix}}_{\vec{x}} = \underbrace{\begin{bmatrix} 201587 \\ 192295 \\ 185445 \\ 183553 \\ 190490 \end{bmatrix}}_{\vec{b}}$$

Table 4: Prediction of the number of fund members depending on average salary

| Avarage salary in Serbia | Fund members |
|--------------------------|--------------|
| 50.000,00 | 194966 |
| 52.500,00 | 204753 |
| 55.000,00 | 214541 |
| 57.500,00 | 224329 |
| 60.000,00 | 234117 |
| 62.500,00 | 243904 |
| 65.000,00 | 253692 |
| 67.500,00 | 263480 |
| 70.000,00 | 273268 |

and we solve, by means of

$$A \times \vec{x} = \vec{b} \quad / \quad A^T \quad \Rightarrow \quad A^T A \times \vec{x} = A^T \vec{b}$$

$$(A^T A) \times \vec{x} = A^T \vec{b} \quad / \quad (A^T A)^{-1} \quad \Rightarrow \quad \vec{x} = (A^T A)^{-1} \times A^T \vec{b} = \begin{bmatrix} -790.405006 \\ 3915.118438 \end{bmatrix}$$

So the linear regression function for this case is

$$\varphi_1(x) = -790.405066 + 3915.118438x.$$

Using the obtained function, we can make a prediction of the number of fund members, depending on further possible changes in the average salary, which is shown in Table 4.

On the other hand, if we take the number of users for the independent variable (y) and FONDEX as the dependent variable (x), then we apply the procedure of forming a linear regression approximation function, form

$$\varphi_2(x) = a + bx,$$

by the method of least squares.

We will start with the initial condition, that the error of approximation in the nodes is equal to zero, ie. $\varphi_2(x_k) = y(x_k) (k = 1, \dots, n)$

$$\begin{aligned}\varphi_2(3064.86) &= a + b \times 3064.86 = 201587 \\ \varphi_2(2862.92) &= a + b \times 2862.92 = 192295 \\ \varphi_2(2713.39) &= a + b \times 2713.39 = 185445, \\ \varphi_2(2592.50) &= a + b \times 2592.50 = 183553 \\ \varphi_2(2407.45) &= a + b \times 2407.45 = 190490\end{aligned}$$

If we transform this system into a matrix form, we have

$$\underbrace{\begin{pmatrix} 3064.86 \\ 2862.92 \\ 2713.39 \\ 2592.50 \\ 2407.45 \end{pmatrix}}_A \times \underbrace{\begin{pmatrix} a \\ b \end{pmatrix}}_{\vec{x}} = \underbrace{\begin{pmatrix} 201587 \\ 192295 \\ 185445 \\ 183553 \\ 190490 \end{pmatrix}}_{\vec{b}},$$

and we solve, by means of

$$\begin{aligned}A \times \vec{x} &= \vec{b} \quad / \quad A^T \times A \times \vec{x} = A^T \times \vec{b} \\ (A^T A) \times \vec{x} &= A^T \times \vec{b} \quad / \quad (A^T A)^{-1} \times A^T \times \vec{b} = \vec{x} = \begin{pmatrix} -1164.563403 \\ 69.974794 \end{pmatrix}\end{aligned}$$

So the linear regression function for this case is

$$\varphi_2(x) = -1164.563403 + 69.974794x$$

Using the obtained function we can make a prediction of the number of fund members, depending on further possible changes of FONDEX, which is shown in the table 5.

Table 5: Prediction of the number of fund members depending on FONDEX

| FONDEX | Fund members |
|---------|--------------|
| 3000.00 | 208760 |
| 3050.00 | 212259 |
| 3100.00 | 215757 |
| 3150.00 | 219256 |
| 3200.00 | 222755 |
| 3250.00 | 226254 |
| 3300.00 | 229752 |
| 3350.00 | 233251 |
| 3400.00 | 236750 |

4.2. Complex linear regression

Based on the data from Table 3, where we take the number of users for the independent variable (z), and the average salary x value of FONDEX y as dependent variables, we will apply the procedure of forming a multiple linear regression approximation function, form

$$\varphi_3(x, y) = a + bx + cy,$$

using least squares method. We will start with the initial conditions, that the error of approximation in the nodes is equal to zero, ie.

$$\varphi_3(x_k, y_k) = z(x_k, y_k) \quad (k = 1, \dots, n).$$

$$\begin{aligned} a + b \times 54.908250 + c \times 3064.86 &= 201587 \\ a + b \times 49.642590 + c \times 29862.92 &= 192295 \\ a + b \times 47.887670 + c \times 2713.39 &= 185445 \\ a + b \times 46.836750 + c \times 2592.50 &= 183553 \\ a + b \times 44.436500 + c \times 2407.45 &= 190490 \end{aligned}$$

If we transform this system into a matrix form, we have

$$\underbrace{\begin{pmatrix} 54.908250 & 3064.86 \\ 49.642590 & 29862.92 \\ 47.887670 & 2713.39 \\ 46.836750 & 2592.50 \\ 44.436500 & 2407.45 \end{pmatrix}}_A \underbrace{\begin{pmatrix} x \\ y \end{pmatrix}}_{\vec{x}} = \underbrace{\begin{pmatrix} 201587 \\ 192295 \\ 185445 \\ 183553 \\ 190490 \end{pmatrix}}_{\vec{b}}$$

and we solve, by means of

$$\begin{aligned} A \times \vec{x} &= \vec{b} \quad / \quad A^T \quad \Rightarrow \quad A^T A \times \vec{x} = A^T \vec{b} \\ (A^T A) \times \vec{x} &= A^T \vec{b} \quad / \quad (A^T A)^{-1} \quad \Rightarrow \quad \vec{x} = (A^T A)^{-1} \times A^T \vec{b} = \begin{pmatrix} -600.7212221 \\ 9158.414506 \\ -93.69044454 \end{pmatrix} \end{aligned}$$

So the linear regression function for this case is

$$\varphi_3(x, y) = -600.7212221 + 9158.414506x - 93.69044454y$$

Using the obtained function we can make a prediction of the number of fund members, depending on further possible changes in the average salary and FONDEX, which is shown in the following table:

Table following on the next page

Table 6: Prediction of the number of fund members depending on average salary and FONDEX

| Average salary | FONDEX | Fund members | Average salary | FONDEX | Fund members |
|----------------|---------|---------------|----------------|---------|---------------|
| 50000 | 3000.00 | 176249 | 52500 | 3000.00 | 199145 |
| 50000 | 3050.00 | 171564 | 52500 | 3050.00 | 194460 |
| 50000 | 3100.00 | 166880 | 52500 | 3100.00 | 189776 |
| 50000 | 3150.00 | 162195 | 52500 | 3150.00 | 185091 |
| 50000 | 3200.00 | 157511 | 52500 | 3200.00 | 180407 |
| 50000 | 3250.00 | 152826 | 52500 | 3250.00 | 175722 |
| 50000 | 3300.00 | 148142 | 52500 | 3300.00 | 171038 |
| 50000 | 3350.00 | 143457 | 52500 | 3350.00 | 166353 |
| 50000 | 3400.00 | 138772 | 52500 | 3400.00 | 161669 |
| 50000 | 3450.00 | 134088 | 52500 | 3450.00 | 156984 |
| 50000 | 3500.00 | 129403 | 52500 | 3500.00 | 152299 |

Table 7: Prediction of the number of fund members depending on average salary and FONDEX

| Average salary | FONDEX | Fund members | Average salary | FONDEX | Fund members |
|----------------|---------|---------------|----------------|---------|---------------|
| 55000 | 3000.00 | 222041 | 57500 | 3000.00 | 244937 |
| 55000 | 3050.00 | 217356 | 57500 | 3050.00 | 240252 |
| 55000 | 3100.00 | 212672 | 57500 | 3100.00 | 235568 |
| 55000 | 3150.00 | 207987 | 57500 | 3150.00 | 230883 |
| 55000 | 3200.00 | 203303 | 57500 | 3200.00 | 226199 |
| 55000 | 3250.00 | 198618 | 57500 | 3250.00 | 221514 |
| 55000 | 3300.00 | 193934 | 57500 | 3300.00 | 216830 |
| 55000 | 3350.00 | 189249 | 57500 | 3350.00 | 212145 |
| 55000 | 3400.00 | 184565 | 57500 | 3400.00 | 207461 |
| 55000 | 3450.00 | 179880 | 57500 | 3450.00 | 202776 |
| 55000 | 3500.00 | 175196 | 57500 | 3500.00 | 198092 |

Table 8: Prediction of the number of fund members depending on average salary and FONDEX

| Average salary | FONDEX | Fund members | Average salary | FONDEX | Fund members |
|----------------|---------|---------------|----------------|---------|---------------|
| 60000 | 3000.00 | 267833 | 62500 | 3000.00 | 290729 |
| 60000 | 3050.00 | 263148 | 62500 | 3050.00 | 286044 |
| 60000 | 3100.00 | 258464 | 62500 | 3100.00 | 281360 |
| 60000 | 3150.00 | 253779 | 62500 | 3150.00 | 276675 |
| 60000 | 3200.00 | 249095 | 62500 | 3200.00 | 271991 |
| 60000 | 3250.00 | 244410 | 62500 | 3250.00 | 267306 |
| 60000 | 3300.00 | 239726 | 62500 | 3300.00 | 262622 |
| 60000 | 3350.00 | 235041 | 62500 | 3350.00 | 257937 |
| 60000 | 3400.00 | 230357 | 62500 | 3400.00 | 253253 |
| 60000 | 3450.00 | 225672 | 62500 | 3450.00 | 248568 |
| 60000 | 3500.00 | 220988 | 62500 | 3500.00 | 243884 |

Table 9: Prediction of the number of fund members depending on average salary and FONDEX

| Average salary | FONDEX | Fund members | Average salary | FONDEX | Fund members |
|-----------------------|---------------|---------------------|-----------------------|---------------|---------------------|
| 65000 | 3000.00 | 313625 | 67500 | 3000.00 | 336521 |
| 65000 | 3050.00 | 308940 | 67500 | 3050.00 | 331836 |
| 65000 | 3100.00 | 304256 | 67500 | 3100.00 | 327152 |
| 65000 | 3150.00 | 299571 | 67500 | 3150.00 | 322467 |
| 65000 | 3200.00 | 294887 | 67500 | 3200.00 | 317783 |
| 65000 | 3250.00 | 290202 | 67500 | 3250.00 | 313098 |
| 65000 | 3300.00 | 285518 | 67500 | 3300.00 | 308414 |
| 65000 | 3350.00 | 280833 | 67500 | 3350.00 | 303729 |
| 65000 | 3400.00 | 276149 | 67500 | 3400.00 | 299045 |
| 65000 | 3450.00 | 271464 | 67500 | 3450.00 | 294360 |
| 65000 | 3500.00 | 266780 | 67500 | 3500.00 | 289676 |

Table 10: Prediction of the number of fund members depending on average salary and FONDEX

| Average salary | FONDEX | Fund members | Average salary | FONDEX | Fund members |
|-----------------------|---------------|---------------------|-----------------------|---------------|---------------------|
| 70000 | 3000.00 | 359417 | 72500 | 3000.00 | 382313 |
| 70000 | 3050.00 | 354732 | 72500 | 3050.00 | 377628 |
| 70000 | 3100.00 | 350048 | 72500 | 3100.00 | 372944 |
| 70000 | 3150.00 | 345363 | 72500 | 3150.00 | 368259 |
| 70000 | 3200.00 | 340679 | 72500 | 3200.00 | 363575 |
| 70000 | 3250.00 | 335994 | 72500 | 3250.00 | 358890 |
| 70000 | 3300.00 | 331310 | 72500 | 3300.00 | 354206 |
| 70000 | 3350.00 | 326625 | 72500 | 3350.00 | 349521 |
| 70000 | 3400.00 | 321941 | 72500 | 3400.00 | 344837 |
| 70000 | 3450.00 | 317256 | 72500 | 3450.00 | 340152 |
| 70000 | 3500.00 | 312572 | 72500 | 3500.00 | 335468 |

5. CONCLUSION AND DIRECTIONS OF FURTHER RESEARCH

In first two sections of this paper, we analyzed the work of voluntary pension funds in Serbia in terms of financial results. In the continuation of the paper, we modelled the behavior and interdependence of the private pension fund members and two relevant parameters, which are in correlation with fund members. In the first case, the approximation function, which represents a mathematical model of behavior, that is not relevant enough, because it takes into account only one of the factors, and that is the average salary in the country. In the second case, the approximation function that represents the mathematical model of behavior is more relevant, but still insufficient, because it takes into account only FONDEX as variable. Finally, the last approximation function, a mathematical model in which the number of fund members is modeled over the average salary and size of FONDEX, gives a very precise picture and gives opportunity for good prediction of growth and development of the pension system, number of fund members, and its relevance is based on interaction and influence of two independent factors.

Based on the data obtained in Tables 6, 7, 8, 9 and 10, we can be sure of a good estimate obtained by this mathematical model, specifically on the current situation, with the current average salary and the current size of FONDEX. Further research and analysis should consider determining the structure of the population, which could affect the improvement of the performance of voluntary pension funds in Serbia. With these new solutions and a better employment ratio, and with an increase in the number of members who pay contributions to private pension funds (eg that 10% of the population saves in private pension funds, currently about 2%), future retirees in Serbia can expect safer and more certain the future

6. DECLARATION OF INTEREST

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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FAIR TRADE: A MODEL TO STUDY THE BEHAVIORAL ENTRY DECISION FOR PRODUCERS INTO THE FAIR TRADE MARKET AS WELL AS ITS EFFECT ON HETEROGENEOUS PRODUCERS

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ABSTRACT

In this paper we will try to construct a model to examine the entry decision for producers into Fair Trade market, as well as compare this entry with the normal process, or the heterogenous producers' model, we will study the discrepancies between the two, including the lack of information at the entry point for Fair trade producers, and try to find an equilibrium under which the Fair Trade model can succeed.

Keywords: Fair Trade, productivity, costs, profit

1. INTRODUCTION

Fair trade is one type of alternative business model that aims to protect small scale farmers and guarantee them a fair price irrespective of fluctuations in global markets. It also pays an additional 'premium' to the farmer organization, which can then be invested in the social, environmental, or economic development of the local area. The model while highly celebrated on paper is put to the test by many scholars and researchers that find it hard to believe that this model is as perfect as it boasts. One of the aspects being criticized by researchers is the effect on normal farmers, or heterogenous producers as we will refer to them in this paper, the entry decision for a farmer into the Fair Trade market is not only fraught with uncertainties and dangers, but this decision also affects even the other producers already present on the market. While many may argue that this effect wouldn't be an issue if everyone just switch to fair trade produces, this argument is simply invalid and unrealistic, the high standards and entry costs of Fair Trade certifications make it simply impossible for heterogenous producers to make the shift to Fair Trade, and even for Fair Trade producers, a certification does not last for life, every year is followed by an examination and strict audits, aiming to make sure that the Fair Trade standards are still being respected.

2. THE MODEL

The theoretical key to the success of fair trade is that some consumers are willing to pay higher prices for a category of goods produced at a higher standard. Other customers are less concerned or indifferent about these features of fairness, seeing fair trade products as any other good. Therefore, we assume that in society there are two categories of goods, fair trade goods and ordinary goods, each of which provides consumer types with different uses. Dividing consumers into two broad categories is convenient. There is a group of ethical consumers who prefer fair trade products, whereas ordinary products would be preferred by a group of ordinary consumers. These are fixed, but not absolute, preferences. There is a relative preference for fair trade goods among ethical consumers, but not at any cost. Similarly, fair trade goods can also be purchased by ordinary consumers. We will translate this by supposing that the consumption of simple goods and fair trade goods is valued by a representative consumer as follows:

$$U = \left[aC_{pg}^v + (1-a)C_{pg}^v \right]^{1/v} \quad (1)$$

Where C_i ; $i \in \{Pg; Ft\}$; is an index of consumption of varieties different from the category of simple goods or from the category of fair trade products and where a is a surrogate parameter of the CES. This way of modeling is close to the utility function of Bernard and Al (2003). The parameter $0 < a < 1$ is a demand offset parameter, which can be interpreted here as the relative value imposed on ordinary goods by a representative customer. $1-a$ gives the meaning of fair trade in public services. a would represent the share of ordinary consumers in society, and $1-a$ would represent the share of ethical consumers in the typology of consumer groups. On the other hand, $V = 1 / (1-\sigma) > 1$ is the elasticity of substitution between groups. It is important because, even if consumers have clear ideas as to which category of goods they prefer, their actual consumption would often depend on the relative prices of goods in one or another category of goods.

Each product category is made up of a multitude of varieties, indicated by the consumption index C :

$$C_i = \left[\int_{\omega \in \Omega_i} c_i(\omega)^p d\omega \right]^{1/p} \quad (2)$$

Where $c_i(\omega)$ is the consumption of specific variety ω in the complete set Ω_i of varieties of category $i \in \{Pg; Ft\}$ product. The varieties of a category are imperfect substitutes, with elasticity $\sigma = 1 / (1-\rho) > 1$. To focus on the difference between categories, preferences within a category are assumed to be constant and equal for both categories. In other words, for ethical and ordinary buyers, the appeal of alternate varieties within a product category is constant and the same. In addition, we will make the normal assumption that the substitution elasticity within a category is higher than the substitution elasticity between categories: $\sigma > \rho$.

We denote the price that a consumer pays for a variety of product by $p_i(\omega)$, The price index of a particular category of goods becomes:

$$P_i = \left[\int_{\omega \in \Omega_i} p_i(\omega)^{1-\sigma} d\omega \right]^{1/1-\sigma} \quad (3)$$

Consumers in either category maximize their utility by spending:

$$r_i(\omega) = R_i \left[\frac{p(\omega)}{P_i} \right]^{1-\sigma} \quad (4)$$

On each variety ω . In this expression, $R_i = C_i \cdot P_i$ denotes the overall expenditure on a particular category. Using $R = R_{Pg} + R_{Ft}$ to denote the total expenditure in society, maximizing public services also involves:

$$\frac{R_{ft}}{R} = \frac{\left(\frac{1-a}{a} \right)^\psi \left(\frac{P_{ft}}{P_{pg}} \right)^{1-\psi}}{1 + \left(\frac{1-a}{a} \right)^\psi \left(\frac{P_{ft}}{P_{pg}} \right)^{1-\psi}} = \frac{K}{1+K} \quad (5)$$

With K defined as $\left(\frac{1-a}{a}\right)^\psi \left(\frac{P_{ft}}{P_{pg}}\right)^{1-\psi}$ The share of expenditure for products of normal quality

and therefore $1 / (1 + K)$. The importance of the change in demand parameter a in determining societal spending on fair trade goods is clear since $dR_{ft} / da < 0$: the share of spending on fair trade goods increases when fair trade products are valued more (less than). Furthermore, the figure below reflects that the preference for the good of fair trade and the willingness to pay more for it are clearly linked. In order to keep the fair trade expenditure share constant, a higher price index for fair trade goods must go hand in hand with a higher preference for fair trade goods in society ($da < 0$):

$$dR_{ft} = 0 \Leftrightarrow (1-a) \frac{da}{a} = \frac{(1-\psi)}{\psi} \frac{dP_{ft}}{P_{ft}} \quad (6)$$

We now turn to the implications of fair trade for the supply. First of all, the desire for fair trade to improve trading conditions implies additional constraints for local producers. Requiring certain production standards is only one of these constraints. Other constraints involve being part of a cooperative in order to be able to benefit from the fair trade agreement, which implies additional organizational and information costs (Nicholls and Opal, 2005). Essentially then, being part of the fair trade production chain will be costly for producers, varying costs of production. For example, transactions within the cooperative will increase operating costs, while having to comply with fair trade environmental and labor standards directly translate into higher variable production costs. On the other hand, Fair trade also has obvious advantages for participating producers. For example, being part of a democratically organized cooperative gives a counterweight to monopsonic intermediaries in the product distribution chain (Hayes, 2006). In addition, fair trade offers producers a direct and secure channel to rich Western consumer markets. These benefits, however, seem to relate more to the decision to enter the fair trade arrangement, rather than a direct production decision. We therefore model fair trade as being more expensive to produce than ordinary goods, using a parameter s to mark the difference (mnemonic for the standard).

Accordingly, the production function for producers producing fair varieties and good varieties are given by:

$$l_i(\varphi, s) = (f + \frac{q_{i(\varphi)}}{\varphi}) s_i \quad (7)$$

For $i \in \{pg; ft\}$ and where we assume $s_{ft} > s_{pg} > 0$. The production function gives the total amount of labor l that is needed to produce the output q of the variety that the producer produces. There are increasing returns at the producer level due to a fixed cost of production f . The variable costs of production are normalized to 1, but depend on the productivity of the producer, denoted by $\varphi > 0$. Since $s_{ft} > s_{pg} > 0$, a fair trade producer requires a greater contribution of labor than 'an equally productive producer in normal production. We will assume that once producers have decided which category, they will produce their product for, they cannot move on to the other category. Mixed strategies are therefore excluded. This makes sense considering the fact that fair production requires different standards and different organizational arrangement than simple production, so switching to a different mode of production would require new costs. We will also assume that those who produce fair trade products cannot sell these products without the fair trade label. In other words, if the demand for fair trade goods is

insufficient, we deny them the possibility of selling their fair trade products on the simple goods markets. This is not restrictive in our study, since we only consider circumstances where the demand for fair trade goods is equal to the availability of fair trade goods. We note, however, that, given the limited size of the fair trade market, in practice it is quite common for producers of fair trade programs to also sell some of their products on good markets. We also assume that wages are equalized in the two sectors, assuming a fully functioning labor market. In addition, the wage rate will be used as cash in our model, that is to say: $w = 1$ henceforth. This is in line with the concept that the very nature of the work remains the identical (e.g. acting on land), despite the actual fact that working practices are going to be different in fair trade production from those in production simple. additionally, equal pay across sectors is per the concept that the presence of fair trade arrangements will bring labor markets closer to it of a perfect economy, where wages reflect productivity and not powers of exploitation. monopsonic intermediaries within the agricultural commodity supply chain (Hayes, 2006). Finally, having equal nominal wages in both sectors is additionally compatible with the aspect of fair trade that it pays (more) decent wages: the amount of production and productivity of upper labor standards of trade production fair means fair labor receives wages that are above their marginal productivity. The profit of the producers is then given by

$$\pi_i = r_i - \left(f + \frac{q_i(\varphi)}{\varphi} \right) s_i \quad (8)$$

And, using the previous equation, profit maximization leads to the familiar outcome that the price is set at a markup on marginal cost:

$$p_i(\varphi) = \frac{1}{p} \frac{s_i}{\varphi} \quad (9)$$

Considering this assumption, the price of fair trade products is higher than for simple products, while in each product category, more productive producers charge lower prices. Therefore, it is not necessary to introduce a guaranteed minimum price for fair trade producers in the analysis. Also, we assume that these prices are cif prices - to reach foreign markets - because that is ultimately the relevant comparison for local producers. Any difference in the costs of reaching distant markets between fair trade and good simple producers could be easily incorporated, but we ignore it because it would serve a similar function to the difference in S_i .

Considering the price rule, producer profit and producer income can be written as:

$$\pi_i = \frac{r_i(\varphi)}{\sigma} - f s_i \quad \text{et} \quad r_i(\varphi) = R_i \left[\frac{s_i}{p \varphi P_i} \right]^{1-\sigma}$$

and as a norm in the heterogeneous literature, the profits and incomes of producers increase in productivity levels:

$$\frac{r_i(\varphi')}{r_i(\varphi)} = \left(\frac{\varphi'}{\varphi} \right)^{\sigma-1} > 1, \forall \varphi' < \varphi$$

Meaning that the least conditioned producer would be the least productive. Whether a (low) productivity producer is better positioned than simple good production in fair trade is not clear:

$$\frac{r_{ft}(\varphi')}{r_{pg}(\varphi)} = K \cdot \left[\frac{\varphi'}{\varphi} \cdot \frac{s_{pg}}{s_{ft}} \cdot \frac{P_{ft}}{P_{pg}} \right]^{\sigma-1}$$

However, for an equal mass of Fair Trade producers and simple goods, income and profits would be lower for Fair Trade producers unless a sufficient share of consumers have a preference for Fair Trade goods:

$$\frac{r_{ft}(\varphi')}{r_{pg}(\varphi)} = \left[\left(\frac{1-a}{a} \right) \right]^\psi \cdot \left(\frac{M_{pg}}{M_{ft}} \right)^{\frac{\sigma-\psi}{\sigma-1}} \cdot \left(\frac{s_{ft}}{s_{pg}} \frac{\varphi}{\varphi'} \right)^{1-\psi} \quad (10)$$

For $\varphi = \varphi'$.

The essence of entering and exiting companies is as in standard heterogeneous business models. In other words, companies learn about their productivity once they enter the market and then decide whether or not to produce, depending on whether their productivity generates positive profits or not. This basic mechanism is the same for all businesses, whether they end up producing simple goods or fair trade goods. Even if fair trade production has an ethical concern, its main aspect remains profitability (Nicholls and Opal, 2003; Moore, 2004). We assume that this also applies to the decision of companies in which category of goods they will produce: a company will choose the category that generates the highest profits. In our setup, this will involve a comparison of the future profits of the two product categories. This is different from Bernard et al. (2003), where the decision for the category to produce depends on the profits of a single period. The reason for this is often, as we are going to argue, that fair trade production is characterized by the next probability of survival, while it also involves additional entry costs. This creates a discrepancy between the results of a comparison supported earnings for one period and a comparison supported expected future earnings. It is a common feature of the literature on heterogeneous firms that firms can be hit by an exogenous shock leading to bankruptcy. The possibility of such a shock is modeled as an exit probability (ie risk of death) for companies (Melitz, 2003; Bernard et al., 2003). We argue that the likelihood of businesses facing a bad shock is lower in the fair trade category than in the ordinary good category. This makes sense given the objective of fair trade of building long term relationships with local producers, but also because fair trade agreements guarantee minimum prices and are likely to provide better access to financial markets. Therefore, by letting $0 < \theta < 1$ denote the risk of death for a good company, we assume:

$$\theta_{ft} = X_D \theta$$

With $0 < X_D < 1$ indicating the relative risk of Fairtrade death.

Becoming a fair trade business also involves several transition costs. These costs can be material, for example the costs of learning a new production method. But also intangible costs are involved, such as ambiguity regarding an unknown arrangement. For example, joining a fair trade cooperative involves a change to a different organization in the supply chain. Farmers will leave the classic buyer system, where a monopsonic buyer would visit the farmer once a

year to regulate prices and quantities of production. Despite its drawbacks, this system has at least provided certainty to the farmer, which the new system has yet to show. Especially for farmers who are on the margins of survival, such ambiguity may be too much to bear, due to the lack of appropriate fallback options (Nicholls and Opal, 200†). In addition, joining the fair trade cooperative implies that farmers will have to adapt their production method, for example towards more sustainable production methods. It also creates ambiguity, especially when it would involve "moving from a crop your grandfather cultivated to a more expensive crop that no one in your village has ever cultivated before." We model these transition costs as additional entry costs faced by every farmer who decides to become a fair trade producer. These entrance fees are fixed and do not change over time. Adjusting to what it takes to become a Fair Trade farmer is a process that every farmer should follow, regardless of other farmers' experiences with Fair Trade. IO The costs of entering Fair Trade should be considered separately from general market entry costs, also time wise. However, the two entrance fees have in common that they become sunk once incurred. Our assumptions imply that the decision to enter the market and the type of products to be produced can be viewed as a three-step process. First, each potential newcomer calculates an expected value of future profits, which is a probability-weighted average of the potential profits to become a good business and a fair trade business. The business enters if this value exceeds the entry costs that it must pay to become a business. Second, the business learns its productivity level and calculates whether its productivity level could support profitable production. If not, the business will quit. Third, and in the same vein, the company determines the type of good to be produced. It based that decision on a comparison of the benefits of clean and fair production, taking into account the lower probability of survival and the first additional entry costs e_{ft} the second. The first calculation made by the firms is to list the conditions under which production will be profitable. Whichever category a business chooses, businesses must make non-negative profits. This defines a production indifference value of productivity $Q \times$ for one or the other of the categories below which firms would not produce:

$$\frac{r_i(\varphi_i^*)}{\sigma} \geq fs_i \quad (11)$$

for $sc \{pg, ft\}$. This is the standard result that operating profits should at least equal a firm's fixed cost of production. A priori, it is not clear which category has the most value. low of $Q \times$. We know that for sufficiently low productivity levels, $v_{ft}(Q) < v_{pg}(Q)$ is: $v_{ft}(0) = -f < ft < v_{pg}(0) = -f < pg$, like $ft > pg$. However, this will depend on the elasticity of v with respect to Q , which category shows the positive benefits first as Q increases. However, as we will explain below:

$$Q \times ft \leq Q \times pg$$

The second calculation is to derive the conditions that determine the type of good to be produced. Once a firm knows its productivity, and provided that the condition for profitable production is maintained, this decision depends on whether the expected difference in future profits between fair trade and the production of ordinary goods is equal to or greater than the additional fair trade entry costs. The expected future benefits are obtained by taking the net present value of all future benefits, correcting for the risk of death:

$$\pi_{pg}^F(\varphi \geq \varphi_{pg}^*) = \frac{1}{\theta} \pi_{pg}(\varphi) \quad , \quad \pi_{ft}^F(\varphi \geq \varphi_{ft}^*) = \frac{1}{\theta} \pi_{ft}(\varphi) \quad (12)$$

Let φ^{**} be the value of productivity where the difference between the future profits of a fair trade business and those of a business in good standing is just equal to the cost of entering the fair trade market. This marks the point of indifference for a firm between production methods, giving a category indifference productivity value:

$$\pi_{ft}(\varphi^{**}) = X_d \pi_{pg}(\varphi^{**}) + \theta_{ft} e_{ft}$$

We will assume that in the event of equal profitability, the business will become a fair trade business. The difference in chance of death decreases the difference in benefits required to be indifferent between production methods $X_d < 1$, higher entry costs increase it. The non-deductible nature of the additional entry cost means that it is not part of the profit function over a single period, which is why e_{ft} is presented as a separate term in the comparison between future profits. A lower risk of death for a Fairtrade business has a similar effect to a higher level of productivity in that it facilitates the payment of the entry cost for Fairtrade production. Since there are preferences for ordinary goods and for fair trade goods in society, balance requires that both categories of products be produced. This puts a strain on the cutoff points identified in (11) and (13). First, it implies that $\varphi_{ft}^* \geq \varphi_{pg}^*$. Suppose for argumentative reasons, that the order is reversed. This is possible when the profit from the elasticity of fair trade has φ "exceeds that of ordinary products by a sufficient margin." Using (12), the elasticity of the future profits of fair trade will also be higher than ordinary products, which means that not only producers with $\varphi_{ft}^* \leq \varphi < \varphi_{pg}^*$ would be a fair trade producer, but also with the producers

$\varphi > \varphi_{pg}^*$. In such situation, no producer would decide to become a simple producer making balance impossible. Second, $\varphi_{ft}^* \geq \varphi_{pg}^*$ does not guarantee that the production of fair trade goods is the preferred option for certain values of φ . A sufficient condition for the existence of φ^{**} is that the elasticity of future profits from fair trade to φ exceed that of normal production. It requires:

$$d\pi_{ft}^F / d\varphi > d\pi_{pg}^F / d\varphi \Leftrightarrow dr_{ft} / d\varphi > \frac{\theta_{ft}}{\theta} dr_{pg} / d\varphi$$

Which, using (7) and (4), is equivalent to:

$$\frac{\theta_{ft}}{\theta} \left(\frac{P_{ft}}{P_{pg}} \right)^{\sigma-\psi} \left(\frac{S_{pg}}{S_{ft}} \right)^{\sigma-1} > \left(\frac{a}{1-a} \right)^\psi \quad (13)$$

Having a fair trade production requires a preference for fair trade products and that the cost of fair trade production must not be too high. The lower risk of death helps increase the likelihood of fair production, as expected. The condition also conforms to the formal requirement of $\varphi_{ft}^* \geq \varphi_{pg}^*$.

Proposal 1:

To have both simple goods and fair trade goods produced in equilibrium, it is necessary:

- That the zero-rate productivity of the production of ordinary goods ϕ_{pg}^* is lower than the zero-profit threshold productivity of fair trade production ϕ_{ft}^* .
- That condition (14) is verified.

If condition (14) is fulfilled, there will be a value $\phi = \phi^{**}$ beyond which producers prefer to produce fair trade goods. This implies that high productivity producers self-select to become fair trade producers, while low productivity producers produce simple goods. Defining $\phi = \phi_{pg}^{**}$ then giving:

$$\frac{1}{\theta_{ft}} \frac{r_{ft}(\phi')}{\sigma} - \frac{1}{\theta} \frac{r_{pg}(\phi')}{\sigma} > \frac{1}{\theta_{ft}} fs_{pg} + e_{ft}$$

Assuming that (13) holds and using (7) to get $r_c(\phi')/r_c(\phi^{**}) = (\phi'/\phi^{**})^{\sigma-1}$.

Proposition 2:

When both types of goods are produced, firms with productivity $\phi^* < \phi < \phi^{**}$ will produce simple goods and firms with productivity $\phi \geq \phi^{**}$ will produce fair trade goods.

The situation that arises is illustrated in Figure 1 below. The horizontal axis shows productivity levels, the vertical axis represents profits over a single period or future profits, depending on the curve shown. These are the simulation schemes that each potential entrant calculates before learning his productivity. Figure 1 is drawn in such a way that the single period profit lines of the two categories converge, which is not necessary for the analysis to be valid, however. For both categories to be produced, however, the expected future profit lines must converge. They always begin with $\pi_i(\phi) = 0 (i = pg, ft)$ because companies with negative results in one period suffer bankruptcy. The difference in slope between future profit lines and profit lines in a single period is due to the death ratio. Because of the difference in survival rates, the slope of future fair trade profit curves diverges more from the profit line in a single period than is the case for good production. Entry costs for fair trade can be introduced by means of an imaginary line below of $\pi_{ft}^F(\phi)$, as if it were an additional fixed time cost. The indifference productivity level ϕ^{**} is then at the intersection of this shadow line with $\pi_{pg}^F(\phi)$. This point is to the right of ϕ_{pg}^* and relates to positive profits. Note, however, that the real profits made are not represented by the phantom line, because e_{ft} becomes irrecoverable once it has been incurred. We also note that, as shown, the level of productivity that supports the production of fair trade provides benefits on a single highest period for single producing companies: $\pi_{pg}(\phi^{**}) > \pi_{ft}(\phi^{**})$. While this may be different, it is consistent with the inclusion of other elements in the decision on the type of product to be produced than mere differences in production standards. The necessary leap in future profits to ϕ^{**} highlight the trade-off between facing lower prices but the certainty of producing ordinary goods, and the ambiguity of moving to fair trade, despite the prospect of a better price. The difference in profits over a single period of profits ϕ^{**} could be interpreted the same way: to be on the safe side, companies are prepared to face lower profits today.

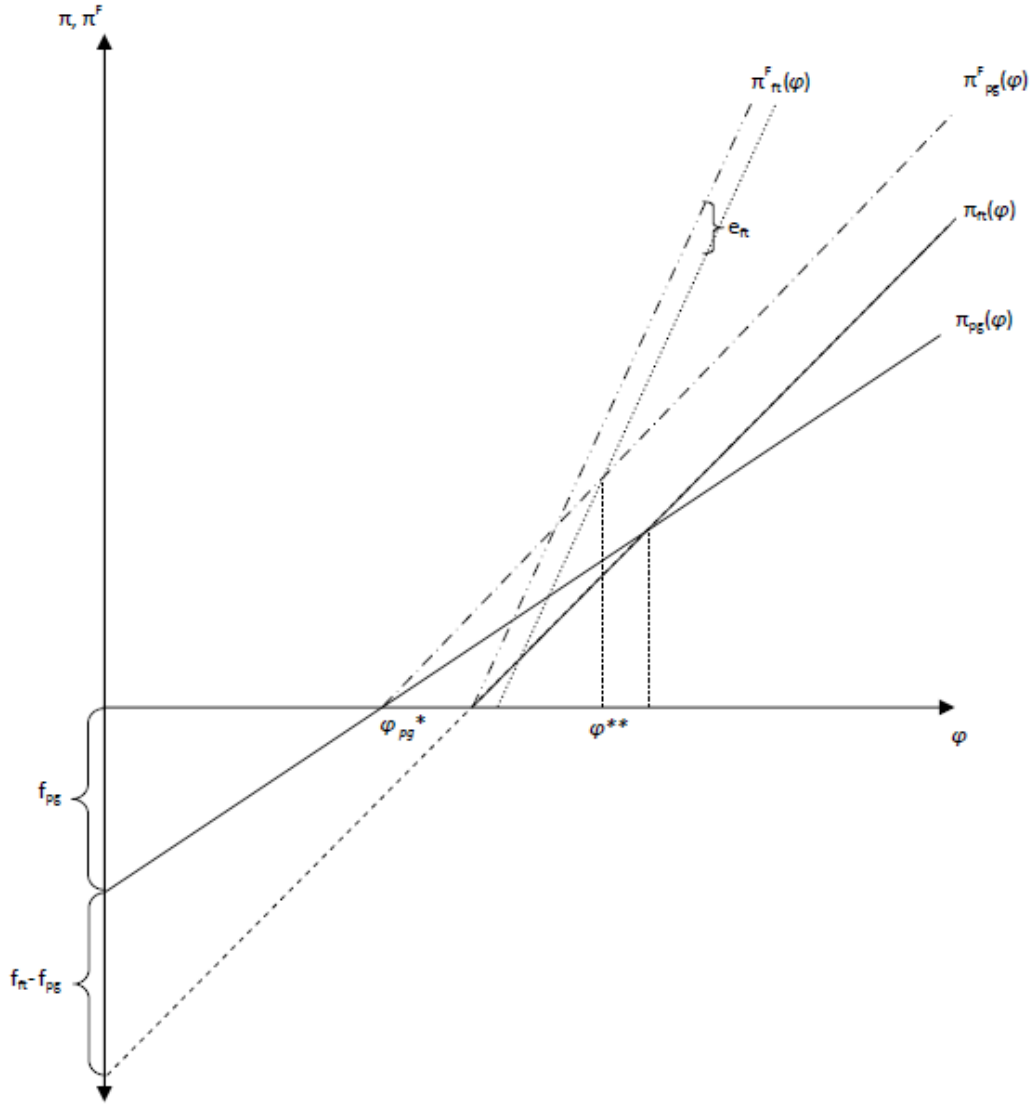


Figure 1: Productivity cut-off points

3. EQUILIBRIUM

Since entrants know what would be optimal to do once they know their productivity, they can calculate expected lifetime gains and compare them to the entry cost for starting a business, including possibility of an additional entry cost for fair trade production. To make this assessment, producers need information on the likelihood of alternative entry options (direct exit, good quality production, fair trade). In this section, we deal with this in the usual way from the literature on heterogeneous firms, as in Melitz (2003). In a later section we will check the consequences of having information, for example on the possibility of engaging in fair trade before entry.

We assume a prior probability density function of the productivities $g(\varphi)$ and the associated cumulative distribution function $G(\varphi)$. It follows that prior probabilities of a successful entry, good regular production and a fair production is respectively of $1 - G(\varphi^*)$, $G(\varphi^*) - G(\varphi^*)$, and $1 - G(\varphi^*)$.

Taking into account that the distribution changes due to the exit of firms, the probability distribution that will follow productivities in one or the other becomes:

$$\mu(\varphi_{pg}) = \frac{g(\varphi)}{G(\varphi^{**}) - G(\varphi^*)} \quad \text{And} \quad \mu(\varphi_{ft}) = \frac{g(\varphi)}{1 - G(\varphi^{**})} \quad (15)$$

This determines the average productivity levels in each market, which can be used to calculate aggregate variables. Average productivity only depends on the distribution of productivity $g(\varphi)$ and thresholds (Bernard et al., 2003):

$$\varphi_{pg}(\varphi^*, \varphi^{**}) = \left[\frac{1}{G(\varphi^{**}) - G(\varphi^*)} \int_{\varphi^*}^{\varphi^{**}} \varphi^{\sigma-1} g(\varphi) d\varphi \right]^{1/\sigma-1} \quad (16)$$

$$\varphi_{pg}(\varphi^{**}) = \left[\frac{1}{1 - G(\varphi^{**})} \int_{\varphi^{**}}^{\infty} \varphi^{\sigma-1} g(\varphi) d\varphi \right]^{1/\sigma-1} \quad (17)$$

Where a tilde above a variable indicates an average value. Since Fairtrade companies are companies with $\varphi \geq \varphi^{**}$, it follows that the average productivity in Fairtrade is higher than in $\tilde{\varphi}_{pg} > \tilde{\varphi}_{ft}$.

With full information on all available options, prior to entry, the expected value of the business is the weighted average of the probabilities of $\tilde{\pi}_{pg} = \pi_{pg}(\tilde{\varphi}_{pg})$ and $\tilde{\pi}_{ft} = \pi_{ft}(\tilde{\varphi}_{ft})$, taking into account the respective survival rates. Entry stops when this value equals the expected entry costs:

$$v_e = \frac{G(\varphi^{**}) - G(\varphi^*)}{\theta} \tilde{\pi}_{pg} + \frac{1 - G(\varphi^{**})}{X \theta} \tilde{\pi}_{ft} = e + [1 - G(\varphi^{**})] e_{ft} \quad (18)$$

Since this model deals with two types of business, the entry costs are separated between the general entry cost to become a normal business and the additional entry cost to become a fair trade business. The latter has a probability since only companies whose productivity is greater than or equal to φ^{**} will decide to become fair trade companies, which is not clear in advance. As usual, we will assume a steady state equilibrium between input and output. This means that for every type of business that comes out, a similar type of business enters. Either M_{pg} and M_{ft} the mass of companies of good companies and fair trade companies respectively, designating the entrants to the market with M_e .. Steady state equilibrium then implies:

$$\theta M_{pg} = [G(\varphi^{**}) - G(\varphi^*)] M_e \quad \text{And} \quad X M_{ft} = [1 - G(\varphi^{**})] M_e \quad (19)$$

The probabilities of (19) reiterate that firms decide what type of firm to become after entering. *Ceteris paribus*, the relative incidence of fair trade companies increases if X_d decreases, if the threshold of profitable production φ^* increases, and if φ^{**} decreases. The model is closed assuming that the labor market emerges. Labor is the only input to our model and all income earned must be paid at work. Since the wage rate has been set at one (numeraire), this implies $L = L_e + L_p = R$, where L_e and L_p denote respectively the labor used for input and the labor used in production. The total profits earned are $\Pi = M_{pg} \tilde{\pi}_{pg} + M_{ft} \tilde{\pi}_{ft}$, which in equilibrium should be the costs of entry, otherwise more companies would like to enter. So:

$$L_p = R - \Pi \quad \text{And} \quad L_e = \Pi$$

L_e Includes additional entry costs for businesses that decide to become Fairtrade:

$$L_e = M_e e + [1 - G(\varphi^{**})] M_e e_{ft}$$

and the equilibrium of the labor market implies:

$$M_{pg} \tilde{\pi}_{pg} + M_{ft} \tilde{\pi}_{ft} = M_e e + [1 - G(\varphi^{**})] M_e e_{ft} \quad (20)$$

The model can be reduced to a system of four equations that can be solved for the variables endogenous φ^* , φ^{**} , P_{pg} and P_{ft} . To solve the model, we follow Bernard et al. (2003) in terms of procedure. First, we combine the expression of the relative income of the firm (9) with the category indifference condition (13). Then, by $r_{pg}(\varphi^{**}) = (\varphi^{**} / \varphi^*)^{\sigma-1} r_{pg}(\varphi^*)$ of (8) and by applying the cut-off condition at zero profit (11), we obtain:

$$\left(\frac{\varphi^{**}}{\varphi^*} \right) = \frac{\frac{S_{ft}}{S_{pg}} + \frac{X_d \theta e_{ft}}{\int S_{pg}} - X_d}{\left(\frac{1-a}{a} \right)^\psi \left(\frac{P_{ft}}{P_{pg}} \right)^{\sigma-\psi} \cdot \left(\frac{S_{pg}}{S_{ft}} \right) - X_d} \quad (21)$$

Which is greater than 1 since $\varphi^{**} > \varphi^*$. By (14) the denominator is positive. It is clear that the disadvantageous development of costs and prices for fair trade - for example S_{ft} or P_{ft} / P_{pg} - will increase the minimum productivity requirement to become a fair trade business compared to what it takes to profitably enter the market. Likewise, this also applies to a decrease in relative Fairtrade expenditure R_{ft} / R_{pg} .. A decrease in the relative advantage of Fairtrade producers in the exogenous chance of exiting - an increase in X_d - is likely to increase φ^{**} / φ^* , but this cannot be settled definitively. Intuitively this can be explained by means of Figure 1, where a change in X_d would not only rotate the curves shown, but also move them.

The ratio of the relative price index can be expressed by:

$$\frac{P_{ft}}{P_{pg}} = \left(\frac{M_{ft}}{M_{pg}} \right)^{1/1-\sigma} \frac{S_{ft}}{S_{pg}} \frac{\tilde{\varphi}_{ft}}{\tilde{\varphi}_{pg}} = \left[\frac{\int_{\varphi^*}^{\infty} \varphi^{\sigma-1} g(\varphi) d\varphi}{\int_{\varphi^*}^{\infty} \varphi^{\sigma-1} g(\varphi) d\varphi} \right]^{\frac{1}{1-\sigma}} \frac{S_{ft}}{S_{pg}} \left(\frac{1}{X_d} \right)^{\frac{1}{1-\sigma}} \quad (22)$$

where we applied (19) and the expressions for average productivity (16) - (17). Logically, the price index ratio increases in the relative fair trade working standard by the fixed markup price rule. Likewise, a higher average productivity for fair trade products decreases its relative price ratio. When the relative probability of X_d Fairtrade death decreases, its price ratio will decrease as fewer companies will exit. We note that with $\varphi^{**} > \varphi^*$ and $X_d < 1$, it is not clear whether fair trade products carry higher prices, despite $S_{ft} > S_{pg}$. Although one of the central tenets of the fair trade movement is that consumers pay higher prices for goods produced under fair circumstances, the self-selection of high productivity firms under fair trade agreements does that it is neither necessary nor required.

The next step is to express (18) in relative prices and cut-off points. Using (10), (8) and (11), while applying the mean productivity expressions (16) - (17), we get:

$$\tilde{\pi}_{pg} = \left[\left(\frac{\tilde{\varphi}_{pg}}{\varphi^*} \right)^{\sigma-1} - 1 \right] \int S_{pg}$$

$$\tilde{\pi}_{ft} = \left[\left(\frac{1-a}{a} \right)^{\psi} \left(\frac{P_{ft}}{P_{pg}} \right)^{\sigma-\psi} \left(\frac{S_{pg}}{S_{ft}} \cdot \frac{\tilde{\varphi}_{ft}}{\varphi^*} \right)^{\sigma-1} - \frac{S_{ft}}{S_{pg}} \right] \int S_{pg}$$

During the substitution, the free entry condition (18) becomes:

$$\frac{\int S_{pg}}{\theta} \left[\int_{\varphi^*}^{\infty} \left[\left(\frac{\varphi}{\varphi^*} \right)^{\sigma-1} - 1 \right] g(\varphi) d\varphi \right] + \frac{\int S_{pg}}{X_d \theta} \int_{\varphi^*}^{\infty} \left[\left(\frac{1-a}{a} \right)^{\psi} \left(\frac{P_{ft}}{P_{pg}} \right)^{\sigma-\psi} \left(\frac{S_{pg}}{S_{ft}} \right)^{\sigma-1} \left(\frac{\varphi}{\varphi^*} \right)^{\sigma-1} - \frac{S_{ft}}{S_{pg}} \right] g(\varphi) d\varphi = e + e_{ft} \int_{\varphi^*}^{\infty} g(\varphi) d\varphi \quad (23)$$

The combined equilibrium conditions (21) and (22) determine a single value of the relative prices of goods and the relative cut-off point. Together with the equations (23) and (20), they solve for φ^* , φ^{**} , P_{pg} and P_{ft} .

4. LACK OF INFORMATION AT MARKET ENTRY

A key aspect of the modeling setup is that potential new entrants to the market are aware of the possibility of fair trade before their decision to enter the market. However, potential new entrants are not always aware of this option and will only learn about the possibility of engaging in fair trade after entering as a good company. In a context of poor developing countries with few and dispersed fair trade operations, this scenario is not unlikely. This leaves the decision to stay in the market and / or become a Fair Trade business intact - once businesses get in, they learn that Fair Trade is an option - but this clearly has consequences for the decision.

To enter the market or not. Without knowing the possibility of fair trade, the free entry condition would become:

$$v'_e = \frac{G(\varphi^{**}) - G(\varphi^*)}{\theta} \tilde{\pi}'_{pg} + \frac{1 - G(\varphi^{**})}{\theta} \tilde{\pi}'_{pg} = e \quad (24)$$

where we use a ' to indicate variables that might change due to incorrect information. The notable difference between (24) and the initial free entry condition (18) is the absence of average fair trade benefits, as well as the absence of expected fair trade entry costs. In addition, average profits may change, depending on implicit changes in price indices. The values of the thresholds φ^* and φ^{**} remain the same: the simulation diagrams of the previous section become their productivity.

Without prior knowledge of fair trade production possibilities, the expected value of a business will decrease $v'_e < v_e$. To see this, it is essential to understand that without the exact information that potential new entrants will base their preliminary calculations based on a version of Figure 1 that only includes (future) profits for normal production companies. Therefore, they estimate that profitability is lower than it will actually be, expecting a lower mass of incumbents. To see this formally, consider Figure 2 below. The figure represents the expected value of the entry as a negative function of the number of companies in place. The full information scenario is represented by M , at the intersection of $v_e = e + (1 - G(\varphi^{**}))e_{ft}$. Having limited information implies lower expected entry costs and, as we will show, lower company value. To make this argument, we draw $v_e(\tilde{\varphi} = \varphi^{**})$ as a special case for the full information scenario, giving the value of the firm if the net fair trade benefit for the average firm is just the additional cost of entry. Logically, if fair trade does not bring additional benefits, the number of companies is indifferent to the right information or not. Therefore, the curves of the incomplete information scenario must also intersect in M' . Since $e < e + (1 - G(\varphi^{**}))e_{ft}$, it must be that $v'_e < v_e(\tilde{\varphi} = \varphi^{**})$, as shown by the dotted lines. Obviously, the average Fairtrade productivity will exceed and therefore will be higher than φ^{**} this borderline v_e case, resulting in $v'_e < v_e$ and $M' < M$.

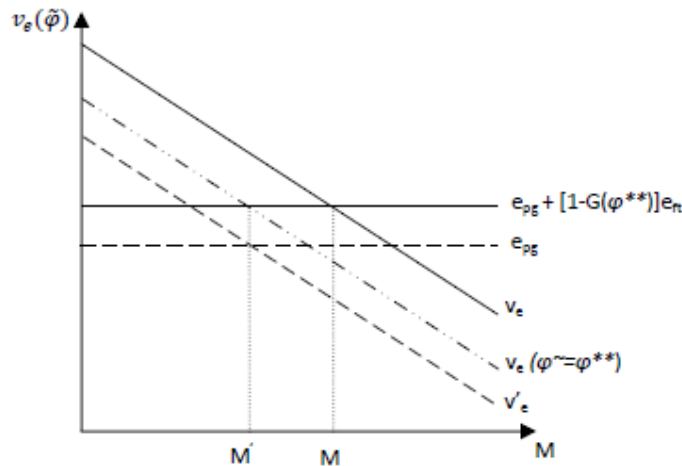


Figure 2: The expected value of a business

The consequence is that when fair trade is not provided for, fewer companies will enter the market than is required for a balanced labor market. With a fixed aggregate labor supply, this implies either unemployment of $L - (L'_e + L_p) > 0$, or a drop in real wages L_p that increases to match the drop in L_e . In both cases, the relative position of workers in society deteriorates. In the event of unemployment, this would manifest itself in part of the working population receiving no wage income, as well as in the resulting excess profits for companies. With real wages unchanged L_p , R and Π are as before, which implies $\Pi - L'_e > 0$. When the adjustment occurs through a fall in real wages, the total profits fall to L'_e , which is the required entry costs. These negative effects can be avoided by advertising the possibility of fair trade to potential entrants.

5. REALITIES OF THE MODEL

Local labor markets will therefore be negatively affected by the existence of fair trade if potential producers are not aware of the possibility of engaging in fair trade agreements before making their entry decisions. As fair trade agreements are introduced, the most productive businesses in society will want to switch to fair trade production. Although they face an additional entry cost, in addition to higher production costs, they benefit from a higher survival rate. Fair trade clearly implies a selection effect. While seeking to help the less fortunate in society, the firms drawn to the arrangement are the larger and more productive firms. This conclusion is drawn in a framework where firms differ in their productivity and where fair trade is presented as a sustainable alternative to ordinary production arrangements, both in terms of labor standards and in terms of sustainable partnerships. The paradoxical results are that when fair trade is successful in its inherent functioning, the benefits will flow to the “wrong” set of producers. What is more, when the possibility of fair trade is not generally known to new businesses before they enter, too few businesses will enter, which will lead to lower real wages and / or excess profits for new businesses. Fair Trade Organizations (FTOs) could take steps to lower the productivity threshold required to become a Fair Trade business. Lowering the costs of entry into fair trade, consumer awareness and pressure on local governments to raise the standards of good production would all help in this regard. However, to fundamentally solve these problems, unorthodox measures may be needed. When productivity differences between firms exist, higher standards and the existence of transition costs mean that there is no way to escape the selection effect. One solution might be to set a maximum profit level for the companies that FTOs wish to include. This would at least make fair trade unattractive for the most productive companies, although it is not clear what this would imply for the level of productivity required to enter into fair trade agreements profitably. Another, more direct solution is to strengthen the criteria for admission to fair trade agreements: FTOs may wish to reconsider which companies they allow to enter the partnership. To counter the selection effect, a rigorous selection policy may be warranted, emphasizing a company's productivity rather than a company's ability to adhere to the requirements of fair trade agreements.

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CORPORATE SOCIAL RESPONSIBILITY, INNOVATION AND EMPLOYEES ENGAGEMENT - THE CASE OF MOROCCAN COMPANIES

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ABSTRACT

The aim of this paper is to examine the most effective role that companies may play in the rehabilitation of the city of Salé. In fact, in order for a city to be developed, companies need to consider a variety of strategies in order to be innovative within their work activities. By integrating corporate social programs as a part of their mission, value, and culture, companies not only motivate employees but also make them innovative in their work performance, allowing them to boost their innovative skills and in return, benefit their community, companies, and their city. Our study supports the affirmation that the sense of belonging along with a strong corporate social responsibility measures have all proven to contribute positively to a city's development.

Keywords: *innovation, employee engagement, corporate social responsibility, city of Salé*

1. INTRODUCTION

The history of development in the « developing countries » is a vast undertaking that can be considered as a laboratory for a new critical paradigm of political economy. Tensions between the need for a single model or universal model for all and the weight of specificities require clarification. The triumph of capitalism as a world-wide economic system is accompanied by a dominant economic thought that refuses to admit any alternative to the anomalies accumulated over the last two centuries. The last decade, since the crash of 2008, has shown a financial and economic disorder of capitalism. This political and economic situation is phase of successive crises observed in the economic cycle since 1970s. In fact, the interconnected global economy increases the spread risk across all economies. The globalization of economies involves uncontrolled risks revealing the madness of an economy programmed by productivism and profitability. It ultimately leads to the failure of Man and his knowledge to master nature. Thus, the logic of "economic growth" to infinity turns out to be a destructive myth for ecology society. The health, food and ecological crises can be as much an example to give. Although attitudes towards companies have never been very positive, they have reached their lowest level in recent years. Mistrust and skepticism about businesses have increased, as well as expectations that businesses must "give back" to society through philanthropy, community participation, or environmental protection activities. In this context, as an economic actor within cities as well as in rural areas, the Moroccan company can play its full role only if it goes beyond the traditional conception as a producer of wealth to become a responsible producer towards community, employees, and the natural environment. Our objective in this article is to expose the different dimensions of social responsibility (CSR) that the company must integrate into its economic choices so that it can have a dynamic role in the rehabilitation of the city of Salé.

The article further discusses that the application of a solid CSR strategy as a solution will indeed have a direct impact on employee engagement and will stimulate innovative ideas among employees.

2. GENERAL CONTEXT

2.1. Rehabilitation and Innovation of the City

The changing role of the city has made development a very complex issue. The necessary resources taken into account are not limited to physical characteristics alone, but include buildings, businesses, services, history, culture, art, citizens and the quality of life they lead. Indeed, several actors can collectively influence the development and rehabilitation of the city. Cities are multi-organizational realities and municipal authorities represent only one type of actors in an inter-organizational network shaping the rehabilitation and innovation of the city (Czarniawska, 2010, p.420). In addition, the same actors that produce the cities are those who consume it. In this case, companies, developers and the population of the city are stakeholders who are fully involved in the cities. All this leads to the observation that the rehabilitation or renewal of the city must go through a process that matches the sharing of knowledge and cooperation between the various stakeholders. Landry (2006, p.3) speaks of an "open urban-planning", open urban planning is the opposite of "top-down logics". For our part, we highlight the essential role of companies in the process of the rehabilitation of the city of Salé. Moreover, this role can only be effective if the company is itself innovative that can be the product of the integration of social responsibility, as a new dimension, in the mission and the objective of the business while ensuring that all its stakeholders are not only concerned but also involved.

2.2. Changes in Moroccan Society

For around sixty years, Morocco have implemented several development strategies. The failure of those strategies has conducted the country to adopt adjustment programs, Those programs were prescribed to respond to the debt crisis of the 1980s. They led to conditionality-based aid aimed at reducing macroeconomic imbalances. The problem of governance has thus recently been invited to the table of discussions as a precondition for economic development. It is this last idea that characterizes so-called "second generation" SAPs. Nevertheless, Moroccan growth is often driven by exogenous factors such as weather conditions or commodity prices. As a result, the Moroccan economy must diversify its economy. The export structure of reflects this dependence to natural resources. In spite of the voluntarism of the development in Morocco by different governments and the assistance of international institutions, the production has been relatively diversified towards products and services incorporating added values. In fact, understanding the institutions of capitalism needs to analyze the structures of economy, social and cultural context and also the risks induced by this system. For Ulrich Beck (2001) modernity is a situation of industrial capitalism where the Risk dominates all social structures and the different levels of economic production. Crisis symptoms of modernity are many and we can select three important trends of more advanced capitalism economies :

- 1) Persistent decline in the rate of economic growth
- 2) Increasing indebtedness in overall leading capitalist
- 3) Rising of economic inequality

The Moroccan society has faced some changes when it comes to both the population's behaviour towards companies and the effects of the associative movement. According to the questionnaire administered to the Masters in International Banking and Finance and Entrepreneurship and Managerial Engineering students on the degree of confidence they have towards famous and known Moroccan companies, it appears that Moroccan youth have lost all

confidence in these companies, serving them in their daily lives. The companies chosen are varied and are to be very common to every citizen. They are: MAROC TELECOM (the number one telecommunication company of Morocco), ORANGE (the number two in telecommunication, coming right after MT), CTM (the number one road transportation company), ONCF (the only railroad Morocco has ever known), JAOUDA milk (the number two Moroccan milk producer and distributor company), MARJANE (the number one wholesaler of consumable goods), and ASWAK ASSALAM (the number two wholesaler of consumable goods).

The reasons behind the lack of this confidence are particularly the following three factors:

- Lack of transparency,
- Product quality,
- Lack of interest in meeting the needs of the community.

These three elements are directly linked to measurement of corporate social responsibility: citizenship, governance, and workplace. Since the mid-1990s, the associative movement has undergone a significant evolution in several areas (Jaidi, 2014). There has been a diversification in the fields of action of the associations as well as an exceptional widening of their role in the provision of social services, community development and advocacy. The breadth and diversity of the associative movement has provided fertile ground for the expression and development of citizenship and has resulted in innovative modes of action that distance themselves from traditional political actions. These movements take the form of street occupation, petitions, complaints, and the use of social media and specific terms of expression such as protest songs. Another aspect of these movements to emphasize is the decline of the confidence index in the state and its institutions. The instruments of representative democracy have pushed these movements to inscribe their actions outside the structures of the state with a view to independence and autonomy in relation to the latter and to partisan structures. The changes experienced by Moroccan society and the attitude of mistrust towards companies show that the socio-economic environment has undergone changes that could determine the success or failure of companies in the Moroccan economic fabric. Facing more informed and demanding citizens, the Moroccan company must adapt and integrate the wave of change. As already pointed out by the CEO of General Electric, quoted by Morgan Witzel (2008), when a society changes its opinion, it is better to be in front of this change and not behind it.

2.3. CSR in the Moroccan Context

Economic institutions, systems and economic organizations such as firms cannot be approached independently of their cultural, social and historical contexts. This statement is today universal in scope. Indeed, many authors and in various social sciences disciplines, agree to highlight the impossibility of a monodisciplinary scientific reductionism in the understanding of the processes of emergence and evolution of such social organisms. This need for an approach that is not only interdisciplinary but also intercultural becomes evident in the fields of economics, development and transformation. In recent years, several factors have favoured practices and the development of CSR in Morocco. Under the theme "Socially Responsible Investing", the Royale message at the second Environmental Upgrade Conference expresses the state's willingness to promote our majesty's values especially as they affect human development and the safeguarding of the environment, on a sustainable development. In addition, the Moroccan legal and legislative framework has been modified. New laws incorporating provisions for the protection and development of resources have been introduced (see Portal of the Observatory of Entrepreneurship: www.ode.ma).

The principles of the Labor Code, which have been in force since 2004 (Official Bulletin No. 5210), are in line with the text of the Moroccan constitution and international standards. These principles highlight all the rules relating to the organization of social relations within the company and in the field of work. Another factor that is important in the promotion of CSR is the CGEM (La Confédération générale des entreprises du Maroc) Label for Corporate Social Responsibility (CCSR). Through this Label, CGEM undertakes to observe, defend and promote the universal principles of social responsibility and sustainable development in their economic activities. Thus, this label relates to the regulation of industrial relations between employers and employees, to favorable working conditions, to the protection of the environment as well as to ethics and transparency in communication and procedures. The CSR label, which has a lifespan of 3 years, has been awarded to several companies, including the LAFARGE HOLCIM Group, TANGER FREE ZONE, COSUMAR Group, (for a more exhaustive list see <http://rse.cgem.ma/liste-entreprises-labellisees.php>). Although the institutional arrangements for promoting CSR are there to encourage companies to integrate an CSR program into their overall strategy, they remain incomplete. In this case, the new Labor Code has omitted certain categories of workers who remain outside any legal protection, as is the case in the artisanal sector. In addition, several companies that were able to obtain the CSR label at first could not renew it, which shows a mixed desire on the part of companies (ibid). In addition, through corporate advertising, CSR is identified as a simple act of charity, sponsorship, a marketing exercise for an image to provide stakeholders. The magnitude and nature of benefits derived from CSR may vary by activity and is often difficult to quantify. Even though CSR initiatives are often directly related to financial performance of an organization, they have a great impact on the operations of businesses and that go way beyond the financial part of it. First, reputation risk management is a central part of any corporate communications strategy. Building a culture of "doing well" within a company can help offset risks that can be harmful to any organization. As noted, Warren Buffet, Berkshire Hathaway's CEO (Argenti, 2004), it may take twenty years for a company to build its reputation but five minutes to destroy it. Secondly, in a crowded market, companies are looking for unique services or products that can distinguish them from the competition in the minds of consumers. The CSR can, indeed, help to build customer loyalty based on distinct ethical values. To stand out, a business needs to stay ahead of the competition and evolve with the concerns of consumers. Third, it is understood that human resources are the strength of the company. Indeed, a CSR program can help recruit and retain employees. It can enhance the image of the company in the minds of employees especially when they get involved through fundraising activities, community volunteering or helping to define the company's CSR strategy. Adopting these strategies to build goodwill and trust between current and future employees can result in lower costs and higher worker productivity. Moroccan companies still have the chance to take responsible measures to differentiate themselves from the competition and build a good will. We will now examine the company's key stakeholders - consumers, employees, investors, and social fabric and the environment - to get a closer look at each group's social responsibility expectations and the actions to be undertaken by the company to consolidate its reputation in the Moroccan market.

3. CSR AS A KEY FACTOR FOR INNOVATION AND EMPLOYEE ENGAGEMENT

3.1. Features and Benefits

Social responsibility, sometimes also known as citizenship or sustainability, are terms that circulate in media information and advertising campaigns in order to gain the trust and loyalty of stakeholders. With this inventory of terms floating in the lexicon of the business world, it is important to define what is meant by social responsibility (CSR, henceforth). According to Argenti (2009), CSR represents the company's respect for the interests and needs of society by fully assuming the impact of its activities on consumers, employees, investors, community and

the environment. CSR encourages the company to see beyond its financial results, to be aware of the social repercussions of its activity. This responsibility includes active and proactive efforts to improve the quality of life for employees and their families, as well as the local community and society in general. A responsible company strives to reduce the negative social and environmental impact of its activities through a well-developed and implemented long-term strategy, and not just temporary ad hoc measures such as material contributions to charities. Indeed, Exxon Mobil's donation of \$250 million over 32 years to sponsor the Masterpiece Theater is an act of philanthropy, but it cannot be classified in the CSR category because the company does not do any other efforts to mitigate the lasting impact of its activities on society. On the other hand, Starbucks' efforts to minimize the negative effects of its supply chain and its coffee sales operations by purchasing coffee beans from fair trade producers and paying its employees higher wages than industry, serve as a cornerstone of its social responsibility strategy. When strategically implemented, CSR defines a positive and effective program that delivers maximum benefits and business gains (Porter and Kramer, 2006).

3.2. Employee Engagement

In the *Organizational Behaviour* book by Steven Robbins, employee engagement is considered as one of the major job attitudes among the five common ones that are job satisfaction, perceived organizational support, organizational commitment, and organizational citizenship behaviour. Employee engagement definitions are of a wide usage. It could directly relate to the degree to which an employee is engaged with his job tasks, sees benefits and self-worth while executing them. It can also relate to the degree to which an individual is enthusiastic about his job and feels a sense of accomplishment that could reach his upper level needs such as self-esteem and achievement (Harter, Schmidt and Hayes 2002). Robinson, Perryman and Hayday (2004) define engagement as “a positive attitude held by the employee towards the organization and its values. An engaged employee is aware of the business context, works with colleagues to improve performance within the job for the benefit of the organization. The organization must develop and nurture engagement, which is a two-way relationship between employer and employee. Engagement, in this case, overlaps with commitment and organizational citizenship behavior, but it is two-way relationship. It is said that it is “one step up” from commitment.

3.3. Relationship between Employee Engagement and Innovation

There is a strong correlation between high levels of engagement and high levels of innovation. Krueger & Killham (2007) found that 59% of engaged employees say that their job ‘brings out their most creative ideas’, while only 3% of disengaged employees said the same thing. Commitment to work is closely linked to the company's performance and financial results but 91% of employees declare themselves to be disengaged in their companies, and 61% of HRDs consider the development of their employees' commitment as one of their main priorities for the years to come. At a time when the economic context does not encourage companies to recruit, the optimization of human capital is essential for them to continue to grow. At the same time, with the digital transformation, companies that do not quickly adapt their business model, processes and organization to new market expectations run the risk of being quickly out of date. Innovating becomes a necessity for transformation, and employees who are fully committed to change are the driving force. Innovation seems to feed on revolutionary ideas as well as small incremental improvements that are equally valuable to the organization. As a result, innovating is everyone's business: from a simple clerk or a worker to a senior manager, to an R & D team, the entire pyramid can potentially contribute to it. But how to concretely infuse into the organization a dynamic of engagement favouring innovation? Idea box, participatory platforms and internal incubators are initiatives that are increasingly popular in companies to bring out new ideas, freeing the collaborator from the organizational constraints pushing them to stop.

Beyond these tools, the development of a true culture of commitment and innovation mainly involves the evolution of organizations and management methods. Should this be done to "free" companies from traditional hierarchical control mechanisms? The idea that carrot and stick policy is effective at motivating employees is obsolete. Levels of retribution, quality of life at work, job security etc., are barely enough to ensure that employees are happy about working in an organization, but are ineffective at mobilizing them over the long term. In 1959, Herzberg divided the motivational factors into two categories: hygiene factors and intrinsic factors, arguing that only the latter produced their long-term effects. But what are these intrinsic motivators? In his book *Drive: The surprising truth about what motivates us*, Daniel Pink outlines the three motivational levers most likely to drive high employee performance in innovative companies. Firstly, these companies develop the autonomy of their employees: participatory innovation implies encouraging initiative at all levels, and thus leaving as much room for maneuver as possible for employees to mature and succeed with their ideas. Secondly, they enable employees to develop their skills: conducting an innovative project transforms employees into genuine intrapreneurs. Often conducted in groups, innovation projects promote the sharing of knowledge and experiences. Finally, they give employees the opportunity to become directly involved in the company's strategy to give real meaning to their work. These three levers of commitment are, however, conditioned by the management philosophy of the company. Indeed, they all assume the relaxation of control mechanisms of the organization, and therefore a more flexible management mode, encouraging employees to take initiatives rather than simply control their actions. In many cases, a true cultural revolution must be carried out in order to achieve sustainable embedding of collaborative managerial practices in the DNA of the organization.

4. EVALUATING EMPLOYEES' ENGAGEMENT IN TEXTILE COMPANIES IN SALÉ

4.1. General Presentation of Fruit of the Loom

Fruit of The Loom is an American company specialized in Textile, with a manufacturing plant in Salé, Morocco. The textile-apparel company Fruit Of The Loom Morocco (FOLM) is a subsidiary of the big American firm Fruit Of The Loom (FOL) and was entitled Fruit Of The Loom Textile (FOLT). The company's annual turnover is estimated at nearly 1.5 billion of DH. Fruit Of The Loom (FOL) produces fabrics for t-shirts, sweatshirts and joggings. An activity upstream of the textile sector for the moment spared from Chinese competition. In 2005, the company had chosen to relocate its production to the Kingdom (www.leconomiste.com). This necessitated the closure of his Irish units and the dismissal of nearly 650 people. FOL has signed an agreement with the Moroccan state for the creation of a new spinning, weaving and dyeing industrial unit in Skhirat region, as well. The choice of locating a manufacturing unit in Morocco goes back to a variety of reasons, among which the availability of the labor market, the age group, and the gender. The Salé site employs nearly 1,800 people with more than 85% female aged between 20 and 45 years of age. The total amount of the investment amounted to some 1.4 billion dirhams, with the contribution of the Hassan II fund for development and the investment promotion fund. Recently, the textile sector is starting to catch up with the new positioning on the fast fashion, medium and high-end products, the proximity to Europe and the free trade agreement with the United States. They are the main assets that saved both the textile industry and the average literate Moroccan females. Moroccan products still find buyers in the European market, and large investors are attracted by the export platform that has become the Kingdom: like FOL, Spanish Tavex or Italian Legler.

4.2. Methodology

To test employee engagement within the selected company, we have conducted a study using an annual employee survey at both Fruit and loom, Salé site. The surveys were hand distributed and then coded into the SPSS software. The survey was composed of 15 answered on a five point Likerts's type scale with neutral midpoints and responses ranging from "strongly disagree" to "strongly agree". The questions tackle different measures, besides profile related questions, knowing that the majority of employees of the textile industry in Morocco are females. Five of them deal with the degree of involvement, commitment, and management support; the next five are related to job meaningfulness, loyalty, and empowerment. The last five are all related to corporate social responsibility actions that employees may have been involved in or are thinking of doing. The questions about CSR actions were clear enough that employees were given questions with predictions included being called "predictor". This type of questions help employees to predict the reasons employees feel engaged by their work. This has eased the thinking process of employees in order to answer in a logic and effective way.

4.3. Data Analysis

Based on the analysis of the results, the questions asked relate to whether employees are engaged according to the following measures: Involvement, Commitment, Meaningfulness, Empowerment, Manager Support, and Loyalty. These last points are developed by Robinson, Perryman and Hayday (2004). From the respondents' answers, about 63% of employees have proven to management that their work is structured. The answers vary between agree and strongly agree. As explained previously, these companies are involved in the textile industry, where job instructions come from the parent company designers who set up the work procedures in details. Employees feel that their work tasks are well defined and that their productivity is based on accomplishing the tasks set up by management. Concerning whether their jobs are challenging, more than 75% of employees have responded between disagree and strongly disagree for the simple fact that they believe that their tasks are basic and do not require any extra innovative work besides the reason that they are told what to do. They feel that they are followers rather than leaders with no sense of empowerment. When it comes to the rest 25%, the answers vary between neutral and agree and that is because few of them have reached supervisory managerial positions allowing them to apply some authoritative rules over their subordinates. This, in fact, has boosted slightly their esteem providing them with a sense of empowerment, which, in turn has been translated to "challenging job". This small percentage of employees believe that they have earned their positions because they have gone through the path of those they supervise, where most of them have reached these positions for tenancy rather than competence reasons. As far as "understanding how the work contributes to overall success" is concerned, the answers were rather negative, employees are not even aware of the overall company strategy, allowing them to think about what contributes and not to its success. The level of enthusiasm is somehow low and does not reflect any of the respondents' answers. However, when it comes to doing a work that is meaningful, the majority of respondents said that their jobs means something important to them. The reason behind this positive answer is related to the fact that the workers see a future behind the skill they are acquiring but not at their current jobs. Most workers take the opportunity of being part of these companies for the sake of having the possibility to either start their work tailoring and or designing business or even leave to work for an already established Moroccan platform within the textile industry, as well. In other words, they are using their learning capacities in order to be nurtured and challenging outside their current companies. Concerning whether they feel valued or not, about 68% have answers that vary between disagree and strongly disagree, this is explained by the fact that their benefits are almost unqualified and that their minutes not even hours of absences are counted against them.

Overall, they feel that they are paid to accomplish their quantifiable job tasks and that there exists not a single affective commitment to their organizations. The rest of employees, not willing to take sides and afraid of getting in trouble with upper management, have answered “neutral”. They live with stories that even prove to them the level of being devalued as workers. In order to accurately analyze our data and give meaningful approaches to our study, we have included predictors within our questions allowing employees to pick and choose among a wide range of information and ease the understanding process for them. Although this study was conducted in one of the pioneer companies within the textile industry, these predictors or actions provide a roadmap for how management could improve employees’ engagement and push them into other actions that can have a great impact on them, their companies, and their communities; corporate social responsibility actions. When management take these actions, it will have a good chance of increasing employees’ engagement. For each of the direct predictors of employee engagement, we identified some other aspects, raised by employees about their community involvement. Employees, via predictors, would like to see their company being involved or even participate in projects from which they and their families could benefit from such as building an elementary school, acquiring books and learning material for their children, allowing their out of jobs spouse to do outside work for the community such as gardening, waste management, and construction work. Management did not consider some of these actions, again, the practical implication for management is that there exist wider range of behaviors that can demonstrate and conditions that can be created to further engage the workforce and, in return, will act responsible toward its company, community, and co-workers. In conclusion, for FRUIT OF THE LOOM, this study provided valuable direction for how to understand, address, and raise the level of employee engagement raising from corporate social responsibility actions. The results are also consistent with what other researchers are saying regarding employee engagement, and more importantly, the study suggests very specific actions for managers to take.

4.4. Interpretations and Recommendations

From an employee perspective, every company must understand and recognize the role of employees in its success and growth. Employees are not only part of the organization, but also an integral part of the company and the environment in which the organization operates. A company concerned with the well-being of its employees not only fulfils its responsibility to the internal stakeholders, but also to the community at large. From an economic point of view, it becomes profitable to undertake a CSR through the well-being of employees. It is important to understand that employees spend most of their lives at work and have a long-term interest in the organization. The employment contract makes the employer accountable to his employees. In return for their work and effort, employees expect wages, benefits and security. It is the responsibility of each organization to meet the expectations of its employees. The extent of these responsibilities is determined by the nature of the job. Usually, permanent employees enjoy the confidence and security of employment, while temporary and probationary employees are those whose interests are sacrificed in the event of a crisis in an organization. To foster a sense of belonging among all employees and to ensure a work-life balance, an organization must maintain a healthy work environment where the following responsibilities are assumed for all employees:

- Offer appropriate compensation based on experience and current standard of living in Morocco
- Guarantee working conditions taking into consideration the health and dignity of each employee.
- Be transparent and honest in communicating with employees
- Listen to employees and when possible, use their ideas and recommendations to act.

- Avoid discriminatory practices and ensure fairness in treatment and opportunities
- Protect employees from possible accidents or illnesses in the workplace
- Provide training to help employees develop their skills and their knowledge, and consequently their career.

Finally, it is important to add that it is imperative to involve employees at all levels of the company in SAR efforts towards the community. Employees are often the main spokespersons of a company, responsible for most shared word of mouth information and impressions. In addition, by placing employees at the heart of a corporate social responsibility strategy, the company can increase employee morale, goodwill, and operational efficiency. Employees can be innovative and formulate ideas on how to give products societal and economic value. From the perspective of the civil society, the Moroccan citizen has more confidence in the associative fabric than in companies and government institutions; especially with regard to social responsibility issues such as health, the environment and human rights. These social organizations have many characteristics that allow them to attract the attention and approval of the public. First, their communications are often sophisticated and controversial and are therefore more likely to receive media attention. Second, the small size and flexibility of the associations allows them to act more quickly than companies using more bureaucratic modes of management. The widespread use of the Internet has only increased the reach of their communications to reach a large audience and may pose a threat to the company's reputation. The widespread influence of civil society reaffirms the need for companies to think strategically about relationships with these organizations when developing and implementing a SAR strategy. This collaboration can help identify needs and areas for improvement in the community. From an environmental perspective, in 2006, AL Gore's film: "An inconvenient truth", vividly portrayed the environmental concerns of our new millennium and raised growing anxiety about climate change among millions of consumers. In turn, businesses must respond to this concern and position themselves as a company that respects nature and the environment. Being green not only can attract customers but also can generate huge cost savings. For example, Johnson & Johnson has implemented energy savings at its facilities, reducing greenhouse gas emissions by 34,500 tons in 2006 and saving on annual cost \$ 30 million. Lastly, it is important to note that the strongest SAR strategies are lacking if they do not include a clear communication component. Corporate communication must be actively engaged in RS communication to ensure consistency with the overall strategy of managing communication and its brand image. To establish credibility, the company must avoid declarations or promises concerning SAR acts without actually being carried out. From the consumer's perspective, the boycott of Centrale Danone's products during the last few months leading to a "profit warning on its annual results" (see Les ECO.ma, 27/11/2018) shows that consumers are ready to punish consumers companies for their lack of responsibility. It follows that the ordinary Moroccan consumer is starting to have the unprecedented power to determine the fate of businesses. Companies must not only be aware of the changing values and behaviour of the Moroccan consumer, but they must also remember that the expectations of responsibility are far from homogeneous and sometimes differ considerably according to the region from the country. Not only must the company take into consideration the quality of its products but also the purchasing power of the Moroccan consumer. From the perspective of investors, to be able to develop, any company relies on investments to improve its activities as a company, implement an ambitious financial strategy and strengthen its image in the market. Today, foreign investors are showing increasing interest in socially responsible companies, they are more likely to use RS as part of their investment criteria. By way of example, almost two-thirds of Americans cite a company's social responsibility report as a factor of influence when they take the decision to buy a stock or invest in a business (Fleishman-Hillard/National Consumers League Study, 2006).

Even China - a country where environmental and human rights are mediocre - has announced its willingness, with funds of 200 billion dollars, to generate profits in socially responsible companies by avoiding investments in the gambling, tobacco and weapons industries. Fortune magazine views this development as a "multi-billion dollar bet" that socially responsible companies will perform better than companies that do not engage in ongoing dialogue with shareholders, customers, employees and organizations, on what can be improved (Tellis, 2006). The investment strategy is by no means altruistic; it is based on the belief that the sustainability of a SAR initiative will make a significant contribution to business performance over the long term.

5. CONCLUSION

In recent years, Moroccan society has begun to question more about the ways in which companies generate profits, recognizing for the first time that business practices and the well-being of society are closely linked. This state of mind forces the company to consider the RS as an indispensable component in its strategic vision and its entrepreneurial activity. In this new Moroccan context, the RS is no longer an option but a necessary condition that a company must fulfill to maintain positive relations with its stakeholders and ensure its survival.

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THE NEW MODEL OF THE CROATIAN MUSIC INDUSTRY

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ABSTRACT

This paper analyzes contemporary models of the music industry to illustrate the connections between all of its participants in this highly advanced industry, both in the most developed and in transitioning countries. By comparing a number of existing business models with the one used in the Croatian music industry, the goal of this paper is to shine a light on its current model and, in turn, offer a newer, fairer, more efficient one. This paper consists of an introduction, conclusion and three main parts. It first analyzes the chosen music industry models of the world, then provides an analysis of the existing model in Croatia. Based on the results of this analysis and the findings, the third part of this paper will present a new model for the Croatian music industry as a possible solution for better relationships between the participants in the music industry.

Keywords: *music industry, copyright, digitization, music industry models*

1. INTRODUCTION

At the dawn of the new millennium, the music industry inadvertently transformed through the advancement of information and computer technologies. These changes were influenced by the new possibilities offered to creative, composers, and performers, as well as record labels, distributors and users. This paper analyzes contemporary models of the music industry to illustrate the connections between all participants in this highly developed industry, both in the most developed and in transitioning countries. The goal of this paper is to shine a light on its Croatia's current model and, in turn, offer a newer, fairer, more efficient one by comparing a number of existing business models with the one used in the Croatian music industry. In addition to the introduction and the conclusion, this paper consists of three main parts. It first analyzes the chosen music industry models of the world, then analyzes the existing model in Croatia. Based on the results of this analysis and the findings, the third part of this paper will present a new model for the Croatian music industry as a possible solution for better relationships between the participants in the music industry.

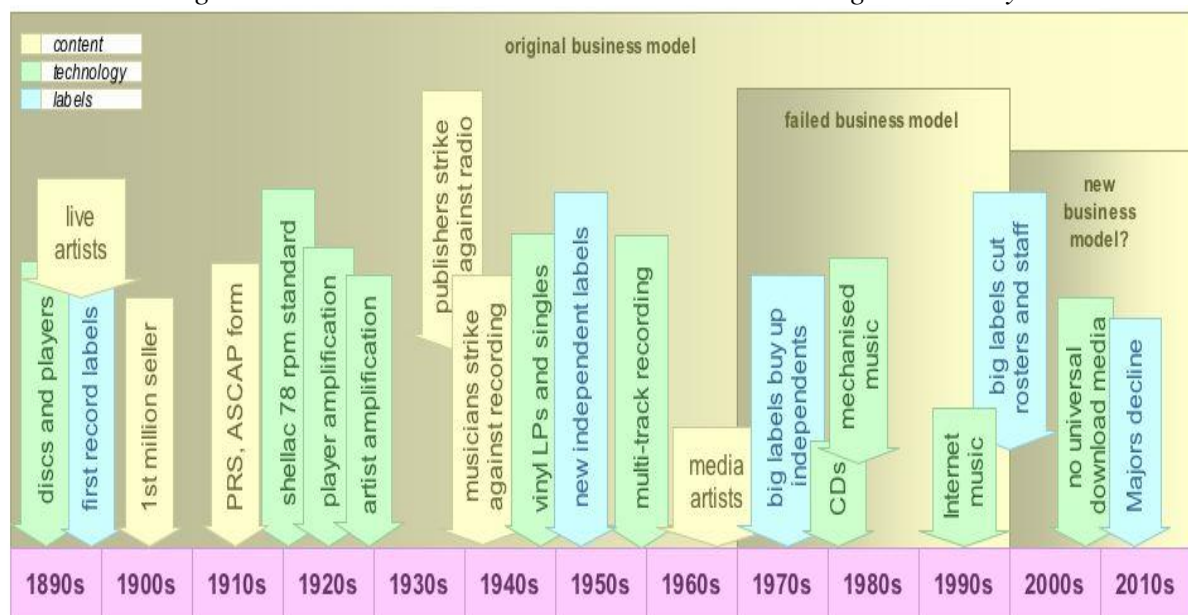
2. AN ANALYSIS OF A SELECTION OF MUSIC BUSINESS MODELS IN THE WORLD

Magretta (2002) claims that a successful business model offers a better way of doing business than the existing alternatives, emphasizing that each new model is just a variation of old models. As a rule, every business model has two parts within its value chain. The first one includes creative activities, while the second part relates to sales, that is, with the monetization of goods or services. Magretta (2002) further asserts that failed business models occur when they fail the narrative test (i.e. the story behind the model makes no sense) or the numerical test (the basic business mathematics are not consistent). The business models of the music industry have changed throughout the centuries. The first models can be found at the end of the Middle Ages and the beginning of printed sheet music, which marks the beginning of the old business model. This model was based on music as a service, and printed sheet music, which is still being distributed worldwide as a basic format.¹ The next change came in the late 18th century, and was marked by the impending collapse of the old feudal system.

¹ The oldest printed book of sheet music is the *Missale Romanum* by Ulrich Han, published in Rome in 1476. (Duggan, 1992:13).

Artists, especially musicians whose existence up to that point was largely facilitated by the court or wealthy patrons, had to continue operating within a new context because the aristocracy decided it no longer wanted to pay (or could not pay) for expensive composers and orchestras in their service (Tschmuck, 2006). The best example of an enterprising and independent composer who thrived with the new business model was Ludwig van Beethoven. According to Tschmuck (2006), his success was possible thanks to the newly created production conditions. Instead of entering into a contract with an aristocrat, Beethoven addressed an anonymous, mostly bourgeois audience through his work printed on sheet music. The original or traditional business model began with the invention of phonograms, as well as the emergence of phonogram producers (discographers) who became a part of the music industry during the late 19th and early 20th centuries. If the year 1476 (which is the year the oldest notation was printed) is taken as the beginning of the development of business models of the music industry, then it is possible to delineate four different music business models (Figure 1).

Figure 1: Cumberland's music business models throughout history



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Source: Cumberland²,

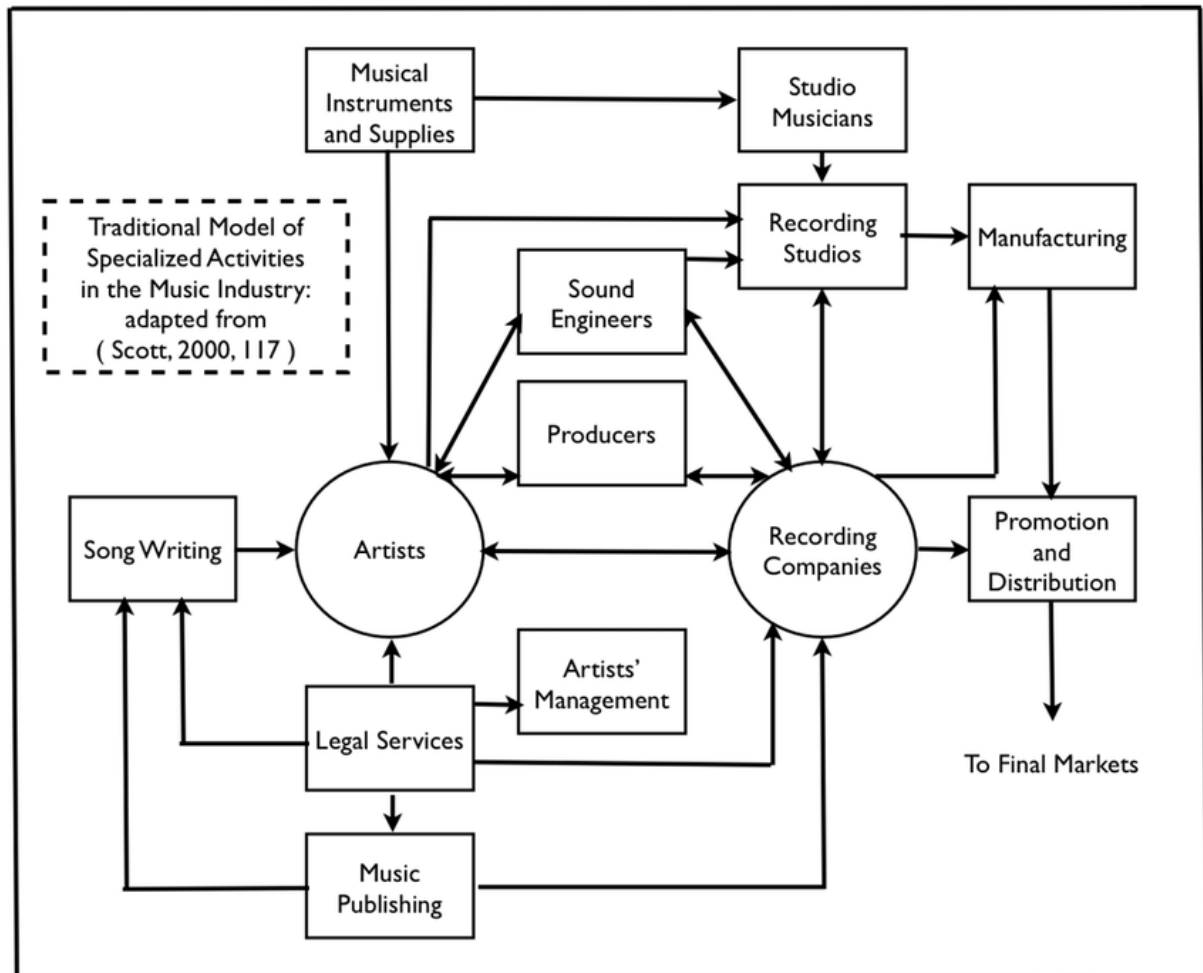
<http://www.bemuso.com/articles/thenewmusicbizmodel.html#theoldmusicbusinessmodel>
retrieved on September 15, 2017

Cumberland labels the period between 1970 to 1990 as the failed business model, even though the value of the music industry that dealt with discography peaked during that time, and consequently experienced a sudden and irreparable decline. This was due to the rapid development of technology which prevented the largest companies from reining online distribution and commerce under their control. A number of scholars have tried to explain the logic and dynamics of the music industry, writes Wikström (2013:49), citing three essential parts of the business, which are recording, music publishing and live performances. Scott (1999:1968) presents a corporate organization model of discography (Figure 2) where the physical production of sound and image carriers is broken down into specialized activities within the process itself. Scott believes that the center of this process is the record label.

² Rob Cumberland - musician, music lover and retired IT professional who manages the excellent independent internet web page: <http://www.bemuso.com>. The web site explores the British music industry.

The original or traditional business model implies that the work of the author/artist mediated through a producer reaches a record label. The production and distribution of a piece of product (format) then goes to the point of purchase, and from there to the consumer or the user. Within this model, most of the revenue ends up in the discographer's hands. The signed contracts state that the record label becomes the owner of a recording, while the performer's fee is, as a rule, paid on the basis of the quarterly calculation of sold copies.

Figure 21: Scott's music business model

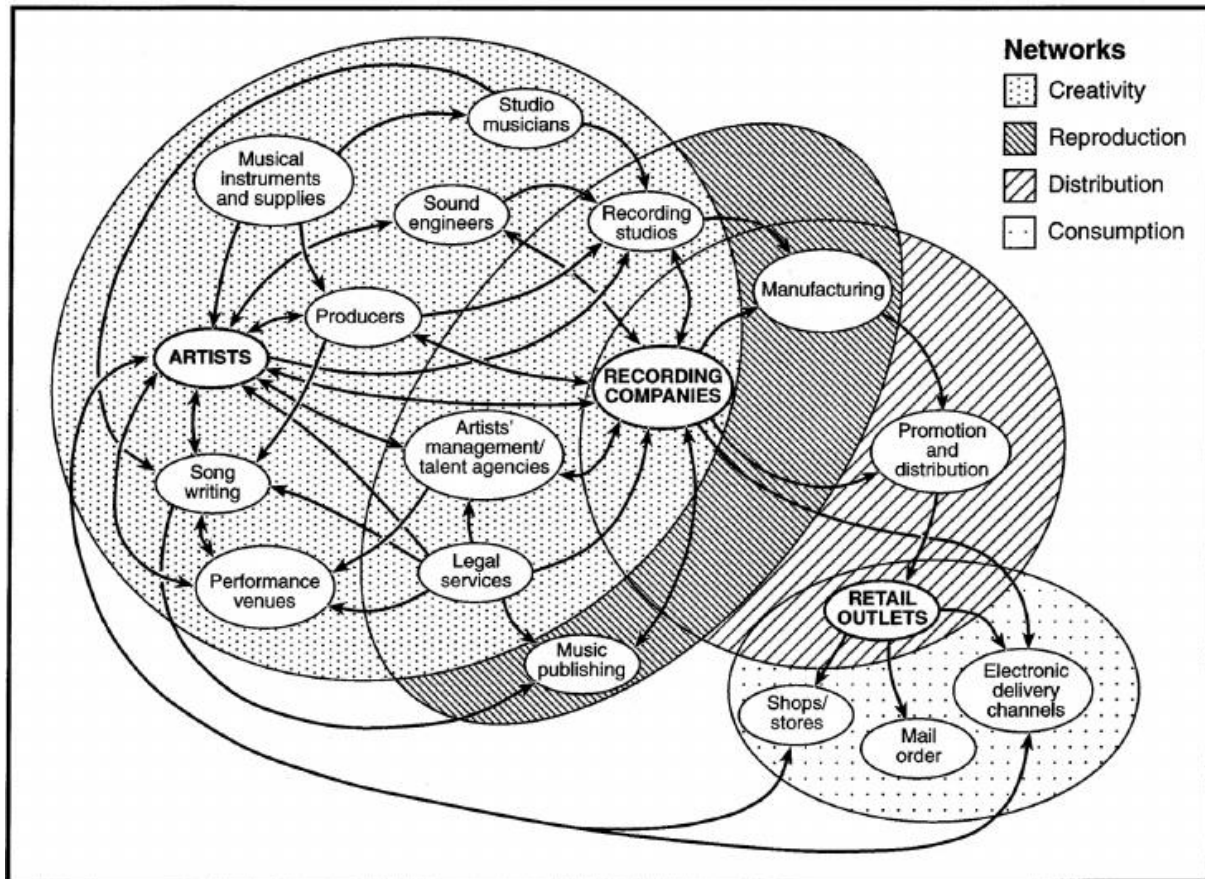


Source: Scott, 1999:1968

By developing Scott's business model, Leyshon (2001:57) argues that the "music economy consists of a series of sequential processes". His model consists of four networks whose functions in certain segments overlap (Figure 3). The consumer network includes those locations where the music products created within the first three networks are being bought (Leyshon, 2001:65).

Figure following on the next page

Figure 2: Leyshon's network structure of the music industry



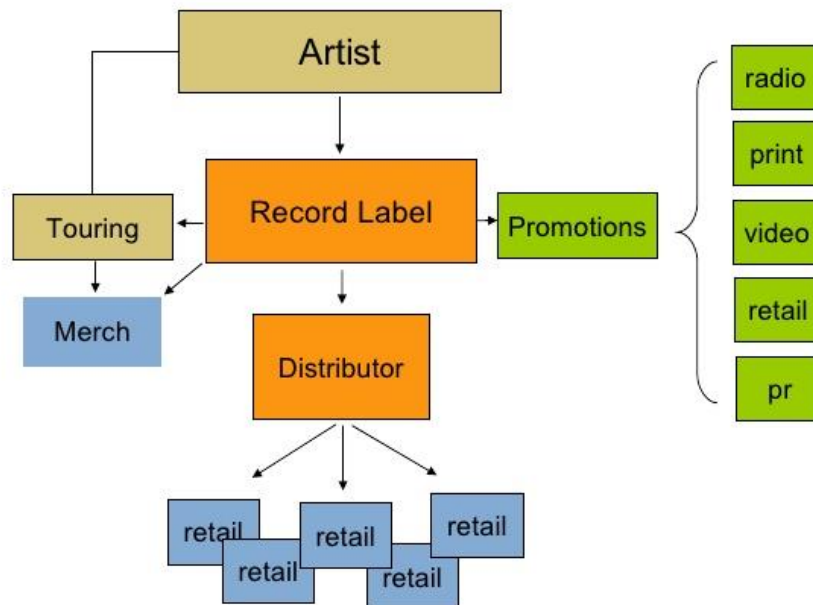
Source: Leyshon (2001:61)

Cudahy (2007) created a music business model that operated before the advent of the internet and digital distribution (Figure 4). His model focuses on record labels, as well as emphasizes live performances and the sale of merchandise on the one hand, and promotion on the other. Cudahy considers radio broadcasting, print, video, and point-of-sale promotion and other PR enterprises as the most important promotional activities. Furthermore, a decade ago Cudahy (2007) created a newer music business model (Figure 5). What is interesting about this model is that it does not feature a record label, which highlights the delusion of the general public during that period. This phenomenon was noted by To Rogers (2013:177), who remarked that the music world was undergoing an "evolution, not a revolution", as well as Galuszka (2015), who indicated the underappreciation of record labels during the first decade of this millennium. Cudahy believed that the new business model would allow artists to independently distribute their work through digital services; likewise, they would have control of live performances and the sale of merchandise. Similarly, he believed that promotional work would be handled by social media, YouTube, etc. in the interest of the artist. Unfortunately, what happened was the complete opposite.

Figure following on the next page

Figure 43: Cudahy's model of the music business before the dawn of the internet

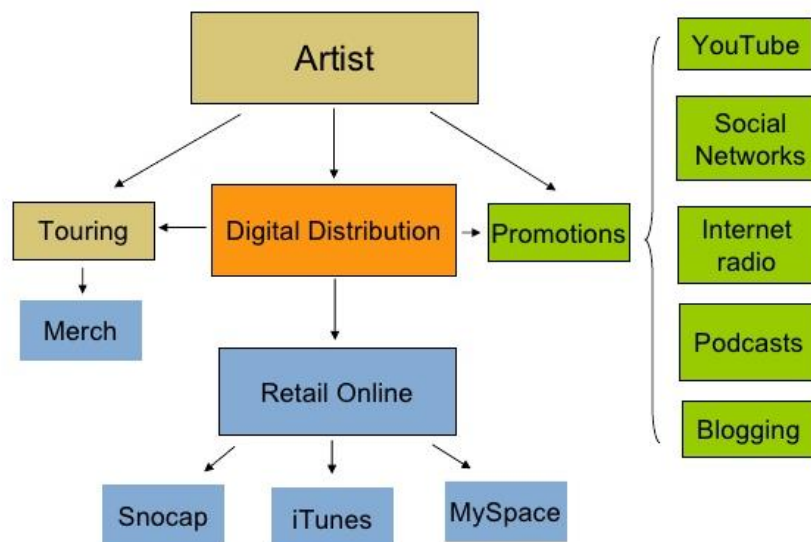
Pre-internet Model



Source: Cudahy (2007), <https://www.slideshare.net/gangofour/the-music-industry-business-model>, retrieved on October 11, 2017

Figure 5: Cudahy's new model of the music business

Present Model (2007)



Source: Cudahy (2007), <https://www.slideshare.net/gangofour/the-music-industry-business-model>, retrieved on October 11, 2017

Record labels still play a major part in the music industry because of the recordings in their catalogues, while YouTube and other social media function as a type of advertisement channel. One of the biggest problems dealing with these channels (especially YouTube) is the complete disregard of copyright and the so-called transfer of value.

In this overflowing, extremely chaotic environment that is the internet (Marson, 1997), which is illustrated in Figure 6, Siemer & Associates (2013), the following intermediaries can be observed between the artists (authors and performers) and consumers (users): classic record labels, music publishers, collecting societies, digital aggregators, the internet cloud (audiobox), online download/retail, internet radio and music services, UGC services and social networks, digital music services for mobile networks, ISP³ music services, and Multi-Channel Networks.

Figure 6: The digital model of music distribution (the digital music ecosystem)



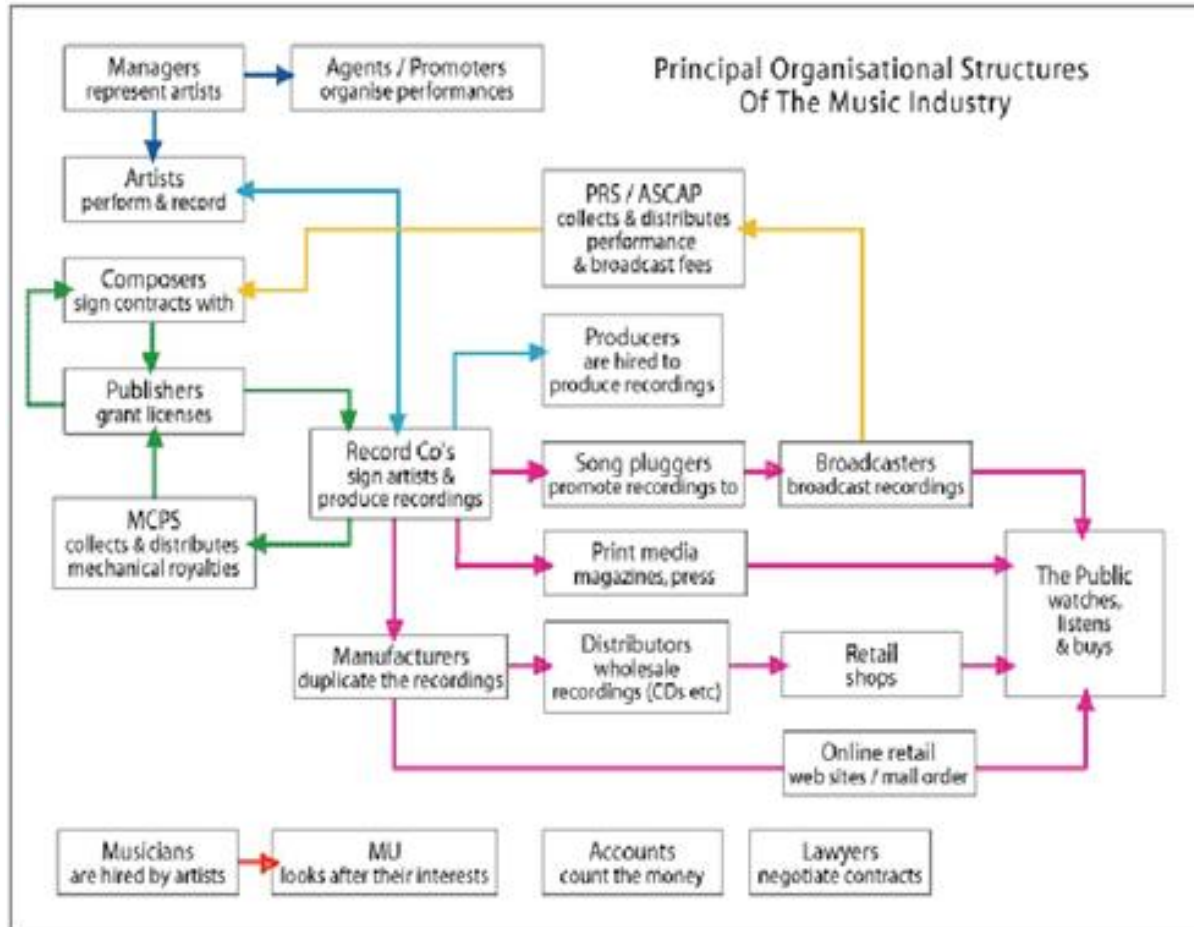
Source: Autor prema Siemer & Associates (2013), available at: <http://www.siemer.com/research/>, retrieved on October 11, 2017

In her music business model, Camilla van der Boom (2011) presents a system that recognizes the importance of all of its factors in such a way that respects the position of the record label, while simultaneously showcasing other functions and activities vital to the extended functioning of this system (Figure 7).

Figure following on the next page

³ ISP - Internet Service Provider, a company that provides internet connection services (i.e. T-com)

Figure 7: A business model of the music industry



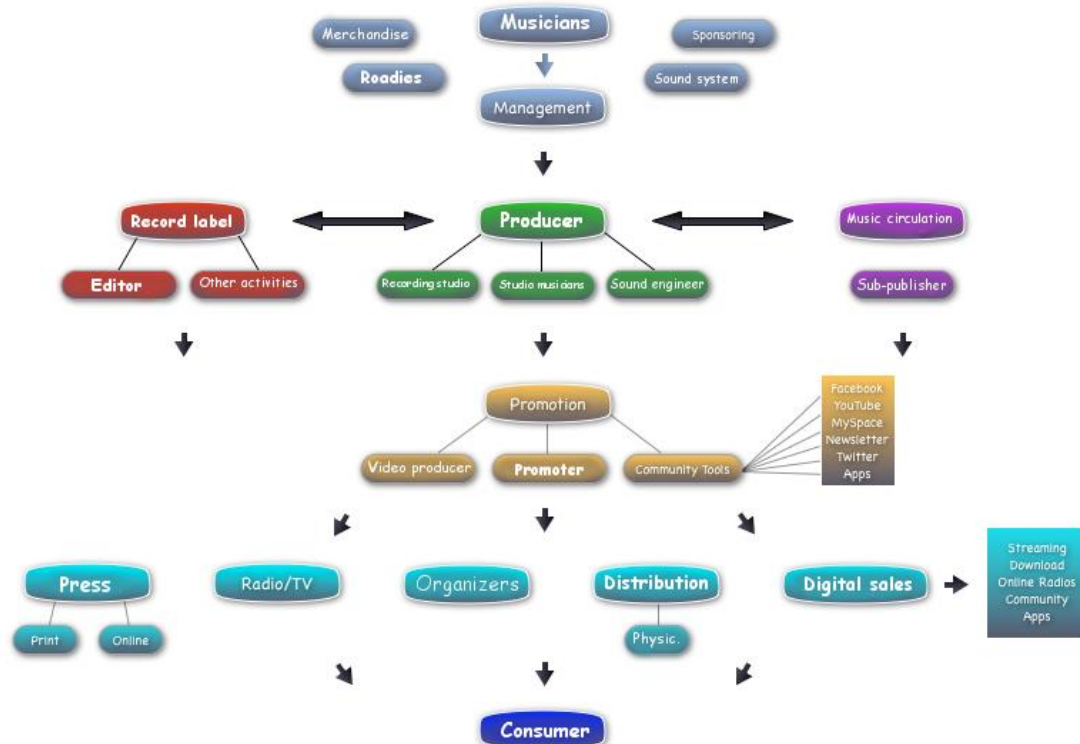
Source: Camilla van den Boom (2011),

<https://www.slideshare.net/camillavandenboom/business-models-in-the-music-industry>,
retrieved on October 11, 2017

Western countries whose music industries have been operating on market principles for many years place greater importance on managers, agents, promoters and music publishers. Their importance and positions can be partially observed in the other models presented in this paper. What distinguishes van der Boom from other theorists who have dealt with this problem is the representation of music unions, bookkeeping services (tax advisors) and lawyers who covertly have almost full control of western music businesses. In his model of the Swiss music industry (Figure 8), Baiker somewhat follows Leyshon's approach (Figure 3) to the music industry, which he views as a series of sequential processes. The creative-performing part is located at the top of the model, followed by editors and producers, as well as music publishers. The promotional-distributional segment of the model handles the created work and passes it on to the user.

Figure following on the next page

Figure 8: Baiker's modern model of the Swiss Music business



Source: Rene Baiker, <https://www.renebaiker.ch/workshops/#top>, retrieved on October 11, 2017

All of these models portray the functioning of the music industry, both in its specific and in its general way, trying to define the key participants and the complex relationships among them. Neither of them suggests the course of monetization or the allocation of funds generated throughout the process. The perception is that the music industry is constantly contradicting itself and the postulates of ordinary business; furthermore, it seems that Harker (1997) is right when he asserts that the industry is wrapped in a veil of secrecy, since the real information and relationships are known only by a handful of people that desire it to remain that way.

3. THE CROATIAN MUSIC BUSINESS MODEL

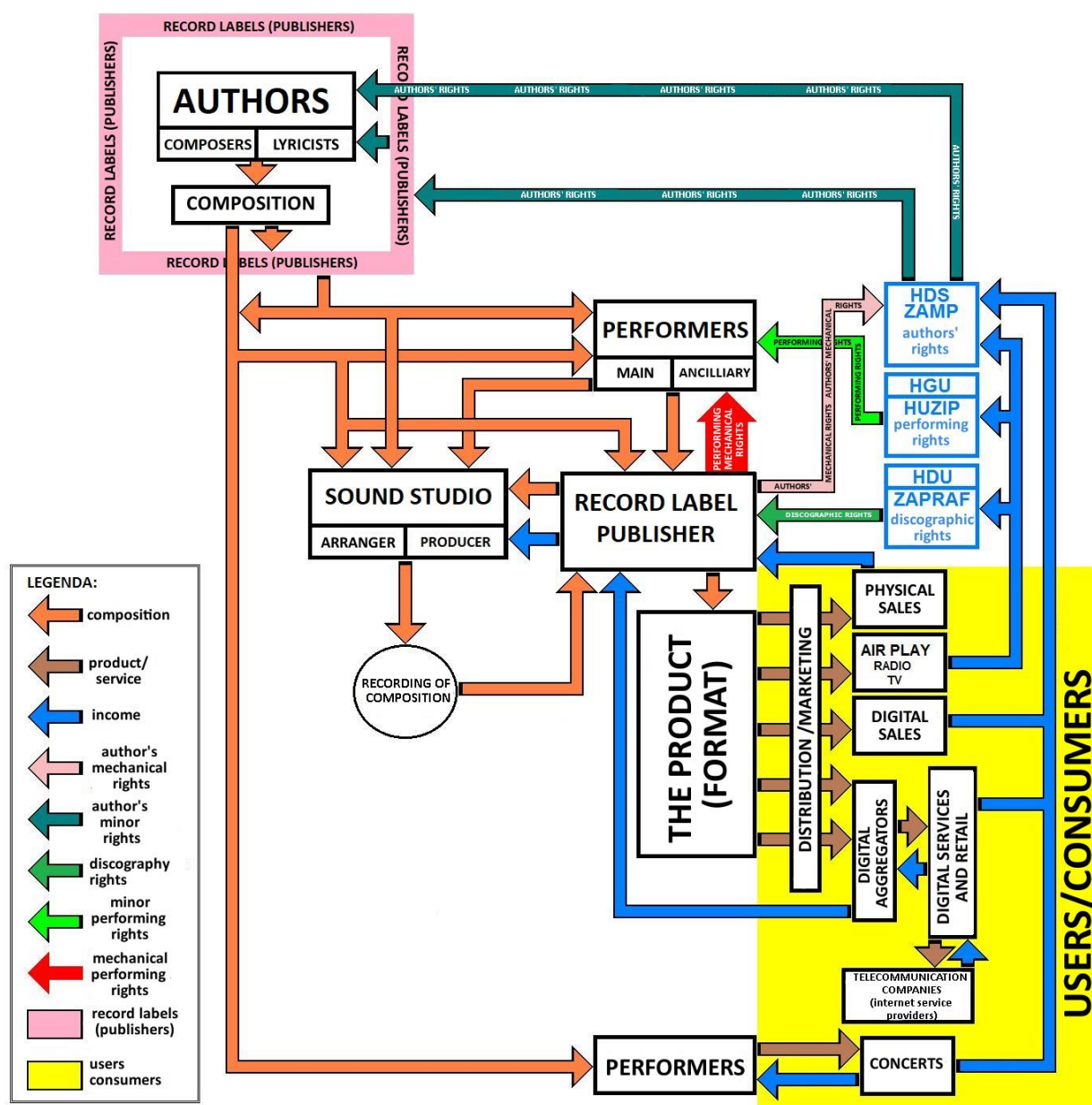
Until 2017, there were no attempts to delineate the Croatian music business model, which is illustrated in Figure 9. The arrows show the direction of a musical work, which becomes a product or a service that then generates certain revenues through distribution. The creative component of the model is comprised of the authors and the songwriters who may have a contract with a music publisher. If they do not have one, then they independently either directly offer the work to the performer or through a record label, that is, the producer who here is part of a sound studio. If the author has a contract with a music publisher, then the procedure of finding a performer, then recording and publishing is identical, except that it can be done by a music publisher who has the same rights as the author. A recording of a piece of music is done after the selection of a performer, which is then transformed into a product by assigning it a barcode⁴ and an ISRC⁵. Through distribution channels, monitored by marketing activities already taking place on the user's interface, a recording (now physical product) is sold either through retailers, through the internet or as a digital recording uploaded to a content aggregator database, which then becomes available to digital retail services.

⁴ A form of labeling a product with a series of black and white lines which are then identified and read by special scanners.

⁵ The International Standard Recording Code, a unique international identifier for sound recordings and music videos.

It is also possible for as recording can circumvent this mechanism and be performed live in front of an audience. Every recording should be protected by an official copyright collecting society. In the event of a live performance, the performer earns a fee and based on the musician application form for live performances the organizer is obligated to pay a fee for the use of the work to HDS-ZAMP. The revenue made from the internet and online sales go to the record labels (publishers). They then directly pay out a percentage to the contractors which they agreed upon signing a contract. These rights are called mechanical performing rights, while the mechanical author's or major rights amounting to 11% of their wholesale price, minus the cost of the equipment and the design, is forwarded to HDS-ZAMP. After a deduction of 18% which is retained by HDS-ZAMP for copyright protection, the money is then directly paid to the authors twice a year. If they have a contract with their music publisher, the fees are first dispensed to the music publisher who retains his contractual part, then the rest is forwarded to the authors.

Figure 9: A model of the Croatian music industry

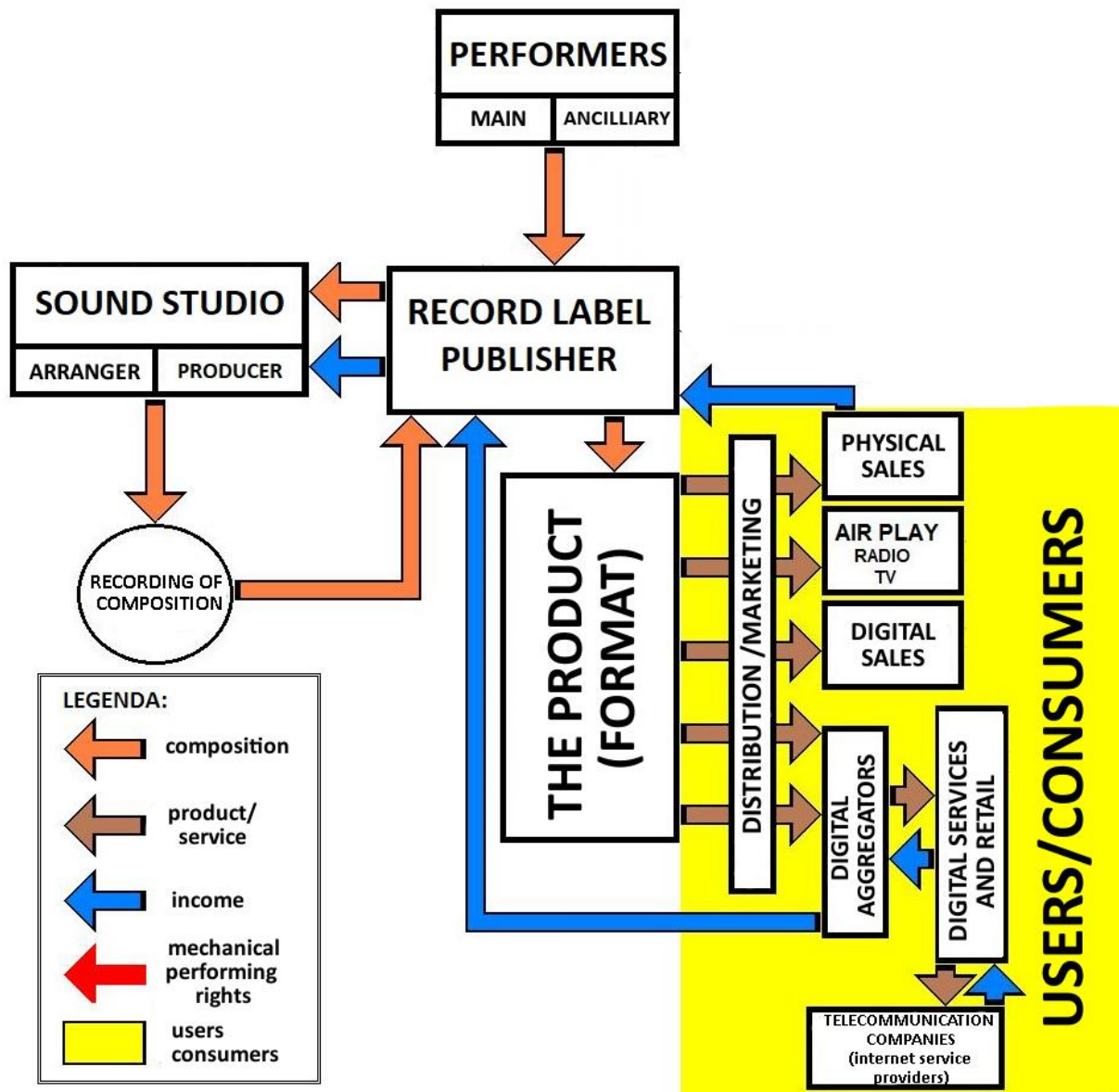


Source: author's work

From the proceeds received from a recording through digital distribution via one of the channels (through download or streaming), a portion relating to the author's rights goes directly to HDS-ZAMP. The remainder of the fees (after deducting service revenue) is sent to the digital aggregator, who retains his part, with the remainder being then forwarded to the record label. Those funds obtained by HDS-ZAMP, along with revenue for exploitation in radio and television programs, i.e. minor rights, are then relegated on the same principle after deducting costs of copyright protection as in the case of author's mechanical rights. HUZIP also collects fees to protect the collective rights of performers from exploitation in radio and television programs and distributes them to performers once a year after the deduction of costs. ZAPRAF collects compensation for the collective rights of producers of phonograms from exploitation in radio and television programs and, after deducting the costs of copyright protection, annually transfers them to record labels. When it comes to the protection of rights' holders in the conditions of digitalization, authors have managed to negotiate collecting fees through their associations because they are objectively in a better position. This problem has been recorded at the level of performing mechanical rights, which has been shown through conducted research. Almost half of the respondents said that nothing had so far come from digital distribution. Figure 10 shows a part of the model of the Croatian music industry that deals with the relationship between record labels/publishers and performers. This relationship is regulated through direct contracts between record labels and performers, which means that it is by law regulated through individual rights of the performing artist. Current practices, as well as the power of music publishers, has allowed record labels to set terms in the contracts which were largely phrased in their favor. Performance fees were small and rarely exceeded ten percent of the performer's constituent. Amendments made to the law, the advent of HGU and subsequently of HUZIP in the 1990s created the conditions for musicians to receive for the secondary use of their recorded performances which were used in public (radio, TV, etc.), thanks to the copyright protection system. Through the digitalization process and the advent of the internet, recordings became available in the broadest sense of the word to everyone, at every moment. Since it is not in the system of copyright protection, this type of use has continued to be treated as a mechanical right, i.e. as a sold item. This means that the fees would be collected by the record labels/publishers and then passed on to the contractors. The reason for this is the low quality of contracts that contractors have signed with record labels, who could not resolutely and explicitly anticipate this situation. Similarly, there was a period where record labels lagged behind and an even longer period where legislature failed as well. During that period, users began to believe that music was free of charge, to which Napster, other platforms and even performers, who believed that the number YouTube views were the most important factor in their career. The reason is that contractors get nothing or receive very little from digital sales. In addition, there are so many intermediaries, which means that the amounts being disbursed are approximate to the fifth or sixth decimal place of one kuna. However, as small these amounts are, they still belong to Croatian musicians, and no one according to the law is allowed or entitled to retain or pay them without their consent. In order to achieve this, a new solution (Figure 11) needs to be made in which the individual rights of the performers will be translated into collective ones, and thus, through HUZIP, will be paid to the performers as the legitimate rightsholders.

Figure following on the next page

Figure 10: Performing mechanical rights



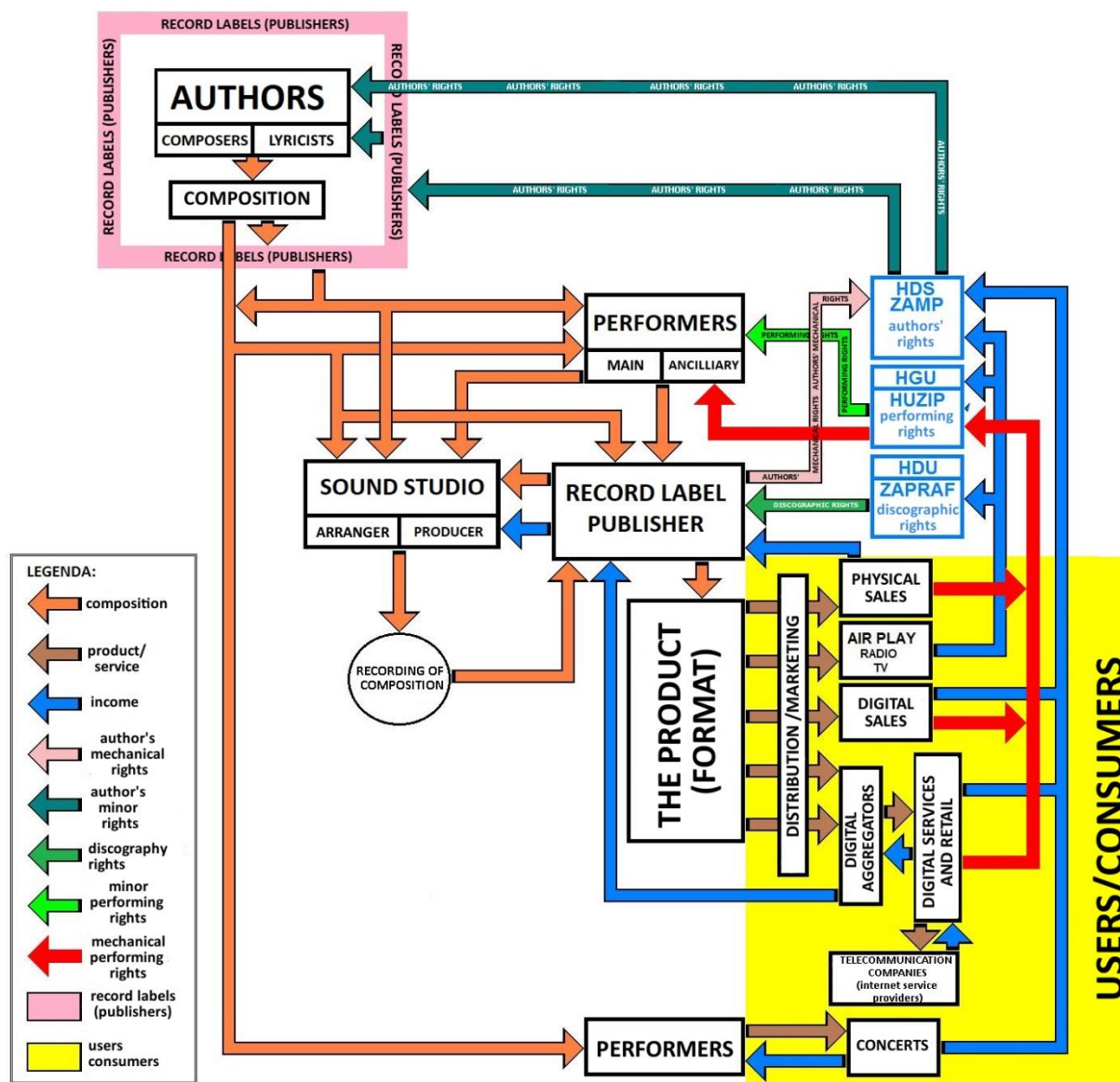
Source: author's work

4. THE NEW MODEL OF THE CROATIAN MUSIC INDUSTRY

Compared to the other models shown above, it is easy to see that the proposed model still lacks certain elements that should be included in the mechanism of the Croatian music business. First of all, the issue of artist representation should be addressed, that is, there should be a solution for the functioning of music managers and agencies.

Figure following on the next page

Figure 11: The new model of the Croatian music industry



Source: author's work

Other models also include unions, providers for legal and bookkeeping services, sponsors and donors. They are not listed because, on the one hand, it is not in the interest of key players within the industry, and on the other, the state as a whole does not treat any business, let alone one that deals with music, as an associate and inciter, but as a criminal jurisdiction. The state also stoutly regulates the possibility of sponsorship through legislature, especially when it comes to donations. As far as the state is concerned, historically, artists have been largely dependent on patronage and have rarely succeeded to independently become self-sufficient. In present-day sponsorships and donations, legislature limits the music industry to use either one. For the sake of clarification, in accordance with laws on corporate income tax and personal income tax⁶, sponsorships are considered to be the act of donating money or other property while expecting reciprocal obligations from the counterpart.

⁶ Law on personal income tax, NN 177/2004
Law on corporate income tax, NN 115/2016

5. CONCLUSION

In the light of everything above, and based on the results of the research, as well as positive world experiences and solutions in theoretical and practical terms, it is evident that it is necessary to change the management model and the distribution of digital revenue within the Croatian music business. Problems that came with digitalization, such as piracy and the illegal use of music are undoubtedly financial, legal and ethical in nature. Attitudes vary from one person to another, but the solution probably does not only entail the excessive use of legal efforts, nor in the use of different technological or marketing approaches. The answer probably lies in a combination and synergistic, measured actions that target users and providers. Considering that there are many users, education and marketing campaigns can be used to improve awareness of the rights holders, while the key to the problem lies in the hands of technology manufacturers, telecommunication companies, large online companies, and record companies as well. They should be treated with better legal solutions and stricter application of legislation because they are the ones who make enormous profits by enabling the creation of an environment where the use of other people's property is possible without compensation.

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