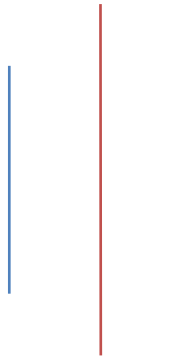
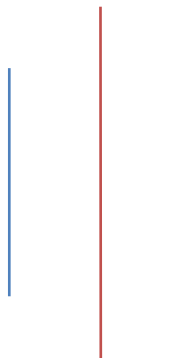


"CAUSES OF CPCU SOCIETY MEMBERSHIP DECLINE AND POSSIBLE REMEDIES"



Submitted to

Dr. Krzysztof M. Ostaszewski, FSA, CFA, MAAA
Actuarial Program Director and Professor of Mathematics
Illinois State University



Submitted By

Khyam Paneru
Graduate Student
Department of Mathematics
Illinois State University

04/20/2009

1. Background of CPCU Designation and CPCU society

1.1 CPCU designation:

Chartered Property casualty Underwriter (CPCU[®]) is recognized as the leading designation in property-casualty insurance, and a person who holds this designation identifies as educated and devoted professional. CPCU designation program is run jointly by American Institute for CPCU (AICPCU) and Insurance Institute of America (IIA). According to AICPCU and IIA, more than 65000 people have earned the CPCU Professional designation. They work as claim adjusters, underwriters, risk managers, brokers, agents, regulators, consultants, attorneys, and educators.

The American Institute for CPCU was established in 1942. Dr. Harry J. Loman, Professor of insurance at “The Wharton School at the University of Pennsylvania” in Philadelphia, was the key person for the foundation of this institute. Under the leadership of Professor Lemon, all segments of the property and casualty insurance industry joined together to build up the Chartered Property Casualty Underwriter (CPCU[®]) professional designation program. It was the first program to establish academic principles, experience requirements, and ethics requirements for a professional designation in property and casualty insurance. The Insurance Institute of America (IIA), was founded in 1909 and it is the oldest constantly operating national organization contributing educational programs for the property and casualty insurance. In 1953, AICPCU and IIA combined together and are functioning as a single organization.

1.1.1 CPCU education Program:

CPCU educational program concentrates on the legal, financial, outfitted and technical aspects of risk management, risk analysis, insurance and financial services on existing business surroundings. This program has provides a broaden knowledge and thoughts of Property-casualty insurance. Two main Property and casualty insurance industries are Homeowner insurance and Automobile insurance.

The CPCU curriculum is designed to provide theoretical and realistic skills with insurance and risk management. This curriculum provides a detail and in-depth knowledge, broad ideas and new concepts for management of risk and insurance. Applying theoretical knowledge to the real working environment is one of the key objectives of this program. Making a good decision is not an easy job. Bad decision can make a company bankrupt in a day. CPCU candidate learn the ideas to make good decision on the job. A CPCU candidate can choose either a personal or commercial insurance concentration, depending on proficient background, personal interests and market needs.

1.1.2 Requirement to earn CPCU designation:

- A candidate must pass 8 courses out of 11 courses offered by CPCU program(pass five foundation courses and select either the commercial or personal insurance concentration and complete the three courses in selected concentration)

- Ethics requirement (The American Institute's Code of Professional Ethics is the standard by which ethical behavior as a candidate or CPCU designee is measured)
- Experience requirement (at least 3 years in insurance field during the five-year period immediately prior the conferment of the CPCU designation)

1.1.3 Education Program Partners:

- CPCU society
- Accredited Adviser in Insurance (AAI) Program
- Insurance Educational Association (IEA)
- International Foundation of Employee Benefit Plans
- Independent Insurance Agents & Brokers of America (IIABA)
- International Center for Captive Insurance Education (ICCIE)
- LOMA
- National Association of Insurance Women (International)
- National Association of Public Insurance Adjusters (NAPIA)
- The Wharton School, University of Pennsylvania

1.2 CPCU Society:

CPCU Society is an association of credentialed property and casualty insurance professionals. It was founded in 1944 with the mission “meet the career development needs of a diverse membership of professionals who have earned the CPCU designation, so that they may serve others in a competent and ethical manner.” Nearly about 28,000 members of the society hold CPCU designation.

1.2.1 CPCU Society membership levels:

There are four different levels of memberships.

i. Full membership:

Full membership is provided to the insurance professional who hold CPCU designation.

ii. Candidate Membership :

Candidate membership is providing for the insurance professionals who are in the process of earning their CPCU designation. Followings are the requirements for this membership.

- Have passed at least four CPCU exams.
- Be considered “active” by the American Institute for CPCU (AICPCU).
- Pay half the CPCU Society’s annual dues and respective half chapter dues.
- Fulfill with the CPCU Society Code of Ethics.

iii. Retired/Disabled Membership :

Retired/Disabled Membership is provided for insurance professionals who are no longer in practice but want to stay in touch with the industry. There are two different types of retired membership.

Regular Retired Members:

- Should be members who have reached age 62 and are retired from full and active employment.
- Should pay one-half the current CPCU Society dues annually, and one-half of any appropriate interest group dues.

Lifetime Retired Members:

- Should be regular or retired member for 15 consecutive years prior to application for lifetime retired status
- Should make one-time payment of 300 percent of the then-current Society dues

iv. Affiliate Membership:

Affiliate membership is provided to the individuals who hold professional insurance designations and are paid members from recognized foreign examining institutes which have adopted a mutual agreement. Affiliate members pay one-half the current national dues annually.

1.2.2 Benefits of being membership:

- Continuing Education Opportunities to sharpen skills with seminars, workshops and symposia.
- Professional Development Programs to improve career with leadership training, public speaking opportunities, courses from prestigious CPCU Society Center for Leadership.
- Valuable Job Bank to take advantage of CPCU Society Job Network to post resume, build a personal career profile, and review job openings
- News and Ongoing Communications to stay connected with CPCU e-LINK, monthly e-newsletter. Members can also stay current on industry news with CPCU society monthly e-zine, CPCU eJournal, bimonthly printed publication CPCU News, and the Society's various interest group newsletters. CPCU society also offers discounted subscriptions on industry publications.
- Discounted Business Services such as CPCU MasterCard® with no annual fee, low group insurance rates

2. Introduction and background of the study:

The number of membership in society is in declining trend. If this trend keeps on continuing, it may possible that this society may no longer exist in future. This study focuses on finding the factors that forces the decline in CPCU society membership. Since the membership decline over time, this study carries an analysis over time using time series econometric models. This study still carries out some cross sectional analysis. In particular this study evaluates to what extent the recent decline in CPCU society membership can be explained by demographic factors, economic factors, alternate

professions to CPCU and other factors that seems to be relevant to the membership decline. The detail of factors and their significance will be on the analysis part of the paper.

There are not many studies done in the membership growth and decline of Professional Societies. Especially it is difficult to find the previous studies that directly relates to CPCU society membership. However we can get enough literatures that relates to the union membership and few for some other societies. Since these are the studies about membership, we still can carry the same ideas as the basis to find the determinants of CPCU society membership. One of the basic models on union membership is Bain and Elsheikh model (Bain and Elsheikh, 1976). Bain and Elsheikh model is the time series model for change in membership over time. Their model says that change in union membership at current time is the function of change in money wage (at current time), change in rate of price (at current time), level of unemployment (at current time) and one lag of level on union density where level of union density is the membership over all employees at work legally entitled to join unions plus the unemployed. Based on same model, Roche and Larragy also developed a model for annual trade union growth and decline in Ireland (Roche and Larragy, 1990). They found change in wage is one of the key determinants for union membership and it has the positive effect on membership growth. It is likely that if the change in wage increases than there is increase in membership. Instead of unemployment in Bain and Elsheikh model, Rochee and Larragy used employment and found it has the positive effect in union membership growth membership growth. Using the theory co-integrated economic variables, Borland and Ouliaris (1994) developed the econometric models for union membership in Australian Union from 1913 to 1989. Co-integration provides an empirical framework for separating and testing the relative influence of cyclical and long-run determinants of union memberships. However, much care should be taken when applying ordinary least square to co-integration system. Park and Phillips (1988, 1989) have shown that ordinary least squares applied to co-integrated systems can yield misleading inference. Borland and Ouliaris developed two separated model for long-run model and short-run model (Using business cycle approach). After a review of the

econometric literature, Coombs (2007) mentioned that “Union like” services from the government has caused the attractiveness of union membership to decline. Individual characteristics such as age, sex, education, and marital status, but also context variables such as size of firm, industry, and public service significantly influence an individual's propensity to join a union (Windolf and Hass , 1989). Schnabel constructed an econometric model of trade union growth and decline in Federal Republic of Germany. The model shows that the current rate of change of money wages, the lagged inflation rate, and the rate of unemployment lagged once and twice, the rate of change of employment, the rate of change of the proportion of foreigners in the workforce, and a constant negative trend factor as determinants of the rate of change of union membership (Schnabel, 1989). Waddington (2006) has made a conclusion that many members left their unions because of some change to their employment circumstances (making redundant, changing employers, or getting retired). A significant proportion left because they were dissatisfied with some aspect of union organization.

Membership in Canadian Sociology and Anthropology Association (CSAA) has declined despite a growing number of sociology and anthropology professors in the country (Brym 2003). Brym argues that four factors are likely responsible for the trend: external competition from sociology organizations in the United States; internal competition from the Canadian Journal of Sociology; a changed environment in which the need for professional organizations is less pressing ; and the growth of insufficiently inclusive and pluralistic reform movements in the CSAA in the 1970s and 1980s.

3. Methodology:

3.1 Theoretical Models used in Union memberships as a basis for the study:

Due to the lack of literature for modeling in society's membership, following theoretical models for union membership will be used as the basis for modeling CPCU society membership. Similar and more variables will be added to the model that relates to the CPCU society membership.

1. One of the basic model on union membership is Bain and Elsheikh model (Bain and Elsheikh, 1976) . The theoretical model developed by Bain and Elsheikh

$$\Delta M_t = b_0 + b_1 \Delta W_t + b_2 \Delta P_t + b_3 U_t + b_4 D_{t-1} + \varepsilon_t$$

Where : ΔM_t = change in membership, ΔW_t = change in money wage, ΔP_t = annual rate of price inflation, U_t = level of unemployment and D_{t-1} = level of union density (membership over all employees at work legally entitled to join unions plus the unemployed). Also union density is a measure of the membership of trade unions which is calculated as the number currently enrolled as members as a proportion of all those employees potentially eligible to be members.)

2. Using the theory co-integrated economic variables, Borland and Ouliaris (1994) used the following long run model for union membership.

Long run model:

$$\log(U) = b_0 + b_1 \log(Em) + b_2 \log(En) + b_3 \log(UE) + b_4 (RW) + v$$

Where U , Em , En , UE and RW are the union membership, employment in manufacturing , Employment in non manufacturing, Employment rate and real wage respectively . v is the membership of stationary class of ARMA(p,q)

3.2 Possible Factors related to the CPCU Society membership and its declining:

There are both time series as well as cross sectional variables. The frequency of time series might be monthly or yearly depending up on the availability of data and nature of study.

3.2.1 Factors related to CPCU

- Number of new CPCU designees.
- Percentage of new CPCU designees not getting CPCU society membership.
- Total number of CPCU designees.
- Number of new members in CPCU society.
- Number of member not renewing the membership .
- Membership dues(\$ amount) for CPCU society.
- Number of member rejoining the CPCU society after they leave the society.
- Number of retirees from CPCU profession.
- Membership by Age.
- Membership by sex.

3.2.2 Factors related to Insurce indursty and specially in property and casualty.

- Number of employment in insurance industry.
- wages in insurance industry.
- Number of employment for underwriter or related occupations.
- Wage for underwriter or related occupations.
- Total claim amounts in property and casualty insurance industry.
- Total number claims in property and casualty insurance industry.
- Percentage of insurance industry in GDP.
- Number of insurance employees.

3.2.3 other possible national factors

- Labor force participation in US
- Unemployment rate in US
- Gross Domestic Product
- Population Growth rate
- Population size
- Inflation rate

3.3 Data Collection and Sources:

Data used under this study is the secondary data. This study has used the data published by different US organizations as well as the data which are not published but are available from CPCU society. This study has two sources of data as: internal source which is basically CPCU society and External sources which are other than CPCU society.

Internal Source: CPCU Society

External Source:

- U.S. Bureau of Economic Analysis
- U.S. Bureau of Labor Statistics
- U.S. Department of Commerce: Bureau of Economic Analysis
- Population Estimates Program, Population Division, U.S. Census Bureau
- Federal Reserve Statistical releases

During the process of data collection both yearly as well as monthly data are collected. Depending up on different analysis and availability of frequency of available data , both monthly

and yearly data are used for the analysis. However the data obtained so far from CPCU society is the yearly data.

3.3.1 Membership by Country, Job function, level of Position:

(i) Membership by country

	Country	Members		Country	Members
1	Bermuda	89	19	Hong Kong	2
2	Puerto Rico	33	20	Jamaica	2
3	Japan	24	21	Pakistan	2
4	China	20	22	Qatar	2
5	Korea	17	23	Antigua	1
6	UK	16	24	Belgium	1
7	Canada	14	25	Costa Rica	1
8	Switzerland	13	26	Curacao	1
9	Germany	7	27	Ecuador	1
10	India	4	28	Grenada	1
11	US Virgin Islands	4	29	Italy	1
12	France	3	30	New Zealand	1
13	Saudi Arabia	3	31	Norway	1
14	Singapore	3	32	Sierra Leone	1
15	Taiwan	3	33	St. Lucia	1
16	Barbados	2	34	Trinidad	1
17	Brazil	2	35	UnitedArab Emerates	1
18	Guam	2	36	Zambia	1

Source: CPCU society as of June 2008

(ii) Members by type of Business

Business	count	%
Insurance Company— Commercial and Personal	12,201	59.7
Agency— Independent and Exclusive	3,977	19.5
Brokerage— Independent and Excess/Surplus	1,422	7.0
Reinsurance	575	2.8
Consultant	408	2.0
Service Organization	255	1.2
Risk Management/Buyer	240	1.2
Surplus Lines	125	0.6
Non-Insurance Entity	122	0.6
Education	119	0.6
Law Firm	98	0.5
Regulatory	79	0.4
Association— Trade or Professional	74	0.4
Other	751	3.7
total	20446	100

Source: CPCU society as of June 2008

(iii) Membership by level of position

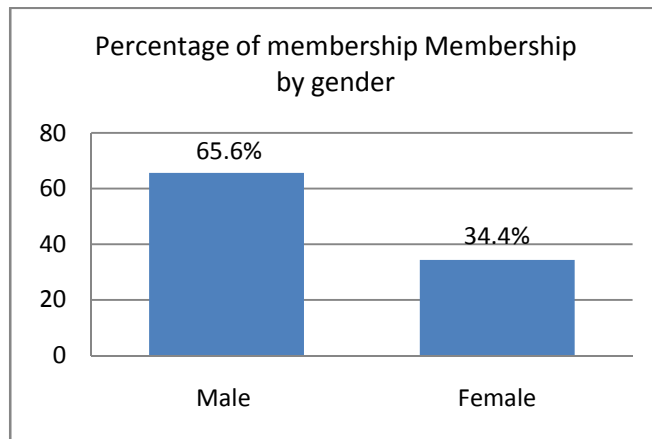
Level	Count	%
Manager/Supervisor	4,813	23.6
Professional	2,427	11.9
Vice President	1,852	9.1
Owner/Partner	1,314	6.4
Technical	1,096	5.4
Analyst	1,049	5.1
Account Executive	942	4.6
President	833	4.1
Director	814	4.0
Sr. Vice President/Executive	758	3.7
Assistant Vice President	603	3.0
CEO	289	1.4
Customer Service Representative	209	1.0
Retired Professional	203	1.0
Administrative Assistant	66	0.3
Student/Trainee	29	0.1
Commissioner or Deputy	10	0.0
Other	3,102	15.2
Total	20,409	100.0

Source: CPCU society as of June 2008

4. Data Analysis:

We are still in the process of collection the data. Complete set of data from CPCU society is not available yet. Based on the information available so far, some analysis is done and the results are described below.

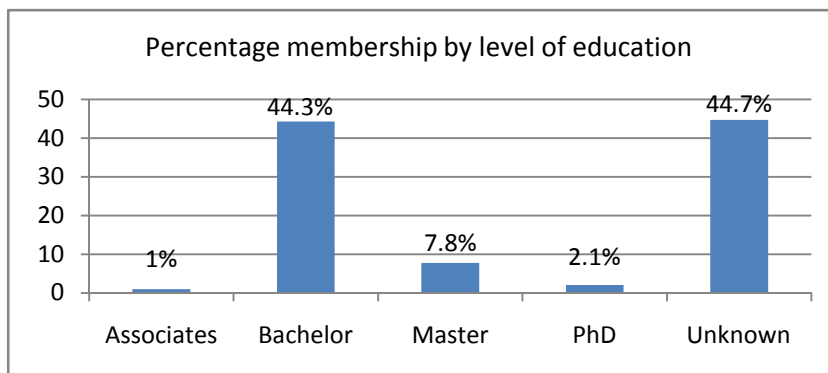
4.1 Membership by Gender:



Source: CPCU society as of June 2008

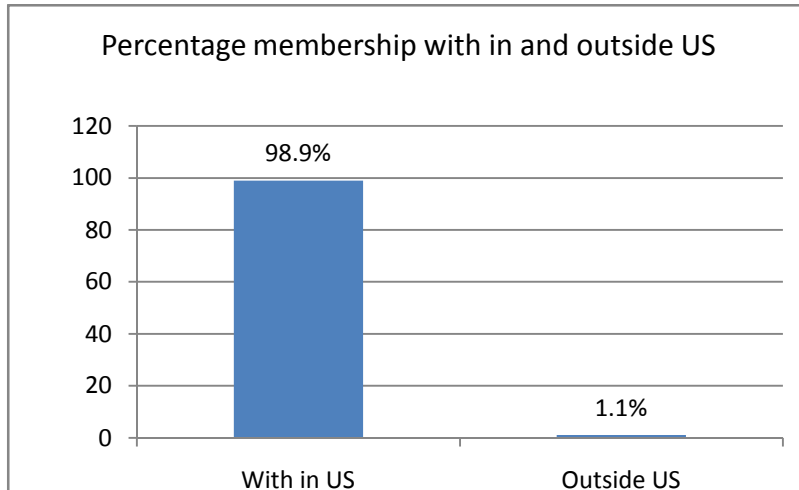
This figure shows that there are more male members than the female members. Male membership is 31.2% more than female membership.

4.2 Membership by Level of Education:



Source: CPCU society as of June 2008

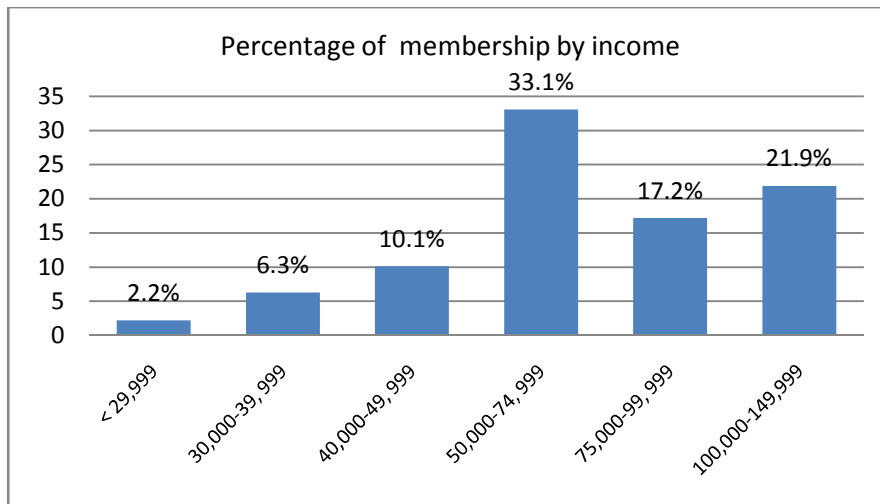
4.3 Membership inside and outside of US



Source: CPCU society as of June 2008

There are very less CPCU society members outside of US.

4.4 Membership by income



Source: CPCU society as of June 2008

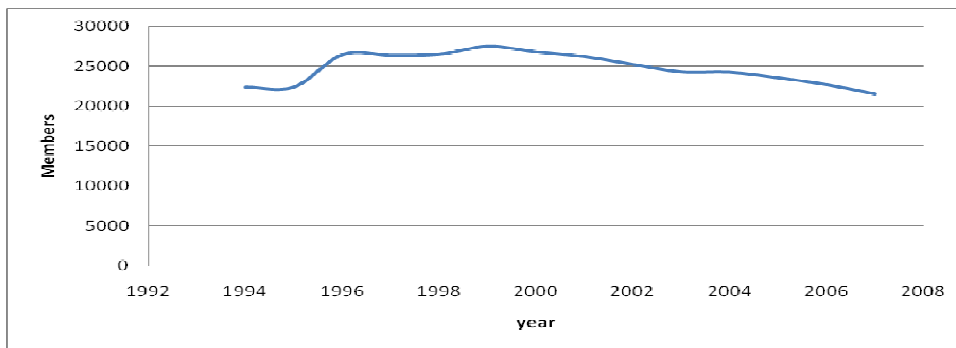
Membership increases with the increase in income. After certain income, membership again decreases as income increases. This means law of diminishing effect of income holds for CPCU

society membership. However, it is not surprising that membership decreases as income becomes high because only few people can have high income after certain level on income.

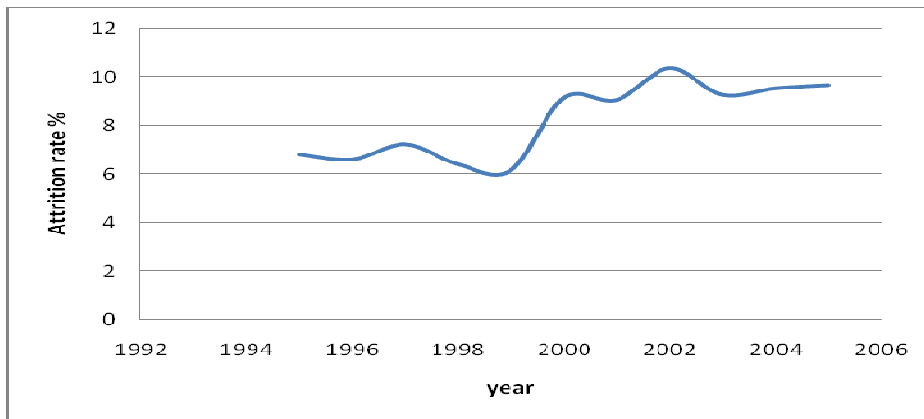
4.5 Historical nature of Membership and attrition rate:

Data for CPCU Society membership is so far available only for short period of time. We are still trying to get more historical data. However I have presented the nature of available data for some recent years.

4.5.1 Historical nature of Total national membership



4.5.2 Historical nature of attrition rate of national membership:



This figures shows that membership is in declining trend and because of this the attrition rate of CPCU society is in increasing trend. However to make conclusions we need data for longer time period.

References:

- Bain G S, Elsheikh F. (1976): *Union Growth and the Business Cycle: An Econometric Analysis*, Oxford: Basil Blackwell.
- Böckerman, P. & Uusitalo, R. 2006, "Erosion of the Ghent System and Union Membership Decline: Lessons from Finland", *British Journal of Industrial Relations*, vol. 44, no. 2, pp. 283-303.
- Borland, J. & Ouliaris, S. 1994, "The Determinants of Australian Trade Union Membership", *Journal of Applied Econometrics*, vol. 9, no. 4, pp. 453-468.
- Brym, R.J. 2003, "The Decline of the Canadian Sociology and Anthropology Association", *Canadian Journal of Sociology / Cahiers canadiens de sociologie*, vol. 28, no. 3, pp. 411-416.
- Charlwood, 2008, "Union membership decline in New Zealand, 1990-2002", *The Journal of industrial relations*, [Online], vol. 50, no. 1, pp. 87.
- Clawson, D. & Clawson, M.A. 1999, "What Has Happened to the US Labor Movement? Union Decline and Renewal", *Annual Review of Sociology*, vol. 25, pp. 95-119.
- Cornfield, D.B. 1986, "Declining Union Membership in the Post-World War II Era: The United Furniture Workers of America, 1939-1982", *The American Journal of Sociology*, vol. 91, no. 5, pp. 1112-1153.
- Cornwell, B. & Harrison, J.A. 2004, "Union Members and Voluntary Associations: Membership Overlap as a Case of Organizational Embeddedness", *American Sociological Review*, vol. 69, no. 6, pp. 862-881.
- Christopher K. Coombs (2008): *The Decline in American Trade Union Membership and the "Government Substitution" Hypothesis: A Review of the Econometric Literature*, *J Labor Res*, 29:99–113.
- Gennard, J. 2007, "Managing Membership Decline in a Hostile Environment: The Case of the Print Unions in the Czech Republic, Slovakia and Hungary.", *European journal of industrial relations*, [Online], vol. 13, no. 1, pp. 89.
- Park, J.Y., and P.C.B Phillips (1988), "Statistical Inference in regressions with Integrated process: Part 1", *Econometric Theory*, 4, 468-98.
- Park, J.Y., and P.C.B Phillips (1988), "Statistical Inference in regressions with integrated process: Part 1", *Econometric Theory*, 5, 95-131.
- Roche, W.K. & Larragy, J. 1990, "Cyclical and Institutional Determinants of Annual Trade Union Growth and Decline in Ireland: Evidence from the DUES Data Series", *European Sociological Review*, vol. 6, no. 1, pp. 49-72.
- Schnabel, C. 1989, "Determinants of Trade Union Growth and Decline in the Federal Republic of Germany", *European Sociological Review*, vol. 5, no. 2, pp. 133-146.
- Waddington, J. 2006, "Why Do Members Leave? The Importance of Retention to Trade Union Growth", *Labor Studies Journal*, vol. 31, no. 3, pp. 15-38.
- Windolf, P. & Haas, J. 1989, "Who Joins the Union? Determinants of Trade Union Membership in West Germany 1976-1984", *European Sociological Review*, vol. 5, no. 2, pp. 147-165.