CHINESE'S PERCEPTION ON MEDICAL TOURISM: FOCUS ON PLASTIC SURGERY IN KOREA

Jiyoung Hwang*, Hyo-Yeun Park**

**Jiyoung Hwang, Ph.D. Candidate, Convention and Exhibition Management Department*
Graduate School of KyungHee University, Seoul, Korea,
E-Mail: fangzee@naver.com
***Hyo-Yeun Park, Research Associate, Convention and Exhibition Management Department*
Graduate School of KyungHee University, Seoul, Korea,
E-Mail: hyopark@khu.ac.kr

ABSTRACT

As Medical Tourism has become a new trend in Korea, Chinese who visit to Korea only for plastic surgery are increasing geometrically. Even though the plastic surgery tourism gets popular among Chinese, there should be problems, side effects and different perspectives. Therefore, the purpose of this study is to investigate perception of Chinese towards medical tourism about aspects of service & quality, culture, personal perspective, policy & media, especially plastic surgery tourism in Korea with using Q method. Q method is based on a theoretically defined discourse (Brown, 1993) that works to identify factors of subjectivity within a sample (P set) (Brown, 2009, p.240-241). In this study, concourse is generated from the discourse on the Chinese perception of medical tourism in Korea especially about plastic surgery and defined by: (1) two socio-cultural themes (Korean Wave Effect, Policy & Media) and (2) two personal discourse of tourism (Service & Quality, Individual perspective). The concourse is a researcher-generated theoretical representation of the range of Chinese tourists who have experience on Korean medical tourism, especially plastic surgery. The 42 Q statements were printed on cards and distributed to respondents for sorting. A P set is a group of participants who sort the Q set consisted of 29 respondents. In this study, the P set of 29 respondents recruited using theoretical sampling to see out a set of residents representing a wide variety of point of view (Patton, 1990). The 29 respondents each produced a Q sort (see Step 4) by arranging statements into a distribution of nine piles (Van Exel & Degraaf, 2005). The Q sort was performed by the participants in November 2014. The four clusters identified through factor analysis by PCQ software. Cluster A is regarding as an inner beauty seeker . This type of respondents reveals that Chinese tourists have positive attitudes towards medical tourism quality and service in Korea. In that sense, they are negative to experience medical tourism in other countries. Cluster B focused on social and economic issues and named it as a media victim. This type insists that the plastic tourism has increased because of Korean Wave effect, but causes social problems. They have a negative aspect of the costs of the surgery and hygienic conditions in Korean hospitals. Cluster C considered as an evasive type and can be a bystander. This cluster type disagrees with the influence of Korean Wave effect on medical tourism, but they agree with the fact that plastic surgery gives confident to those who have lower self-esteem. Lastly, cluster D is a plastic surgery supporter since Chinese tourists from this cluster are mostly generous for the plastic surgery tourism. This type tends to consider individuality not about brand images or else.

This study contributes to the literature on the perception of Chinese about medical tourism by

describing the Q method research conducted onsite in Korea for Chinese tourists. Despite positive Korean Wave effect on Chinese market, recognizing Korean medical tourism has negative impact on Chinese tourists. Therefore, it is vital to improve the images of Korean medical tourism on Chinese tourists for long run competition.

Keywords: medical tourism, plastic surgery, tourists' perception, Q method

REFERENCES

Brown, S.R. (1993). A primer on Q methodology. Operant subjectivity, 16, 91-138.

Brown, S. R. (2009). Q technique, method and methodology: Comments on Stentor Danielson's article . Field Methods, 21(3), 238-241.

Patton, M. Q. (1990). Qualitative Evaluation and Research Methods (2nd Ed.), Newbury Park, Sage: C A.

Van Exel, J. & de Graaf, G. (2005). Q Methodology: A sneak preview. Retrieved from http://www.job vanexel.nl.

STUDY OF PERSONALITY DISORDERS AMONG FERTILE AND INFERTILE WOMEN AND SOME PREDISPOSING FACTORS

Mina Jafarabadi- M.D.

Reproductive Health Research Center, Tehran University of Medical Sciences, Tehran Iran

ABSTRACT

Objective: This study aimed to determine prevalence and predisposing factors of personality disorders among infertile in comparison to fertile women.

Materials and Methods: By a descriptive- analytic study in Vali-e-asr Reproductive Health Research Center, 300 women entered the research. Eysenck personality (EPQ) and structured researcher questionnaires were applied for all patients. Demographic characteristics and predisposing personality factors were recorded and personality symptoms were scaled. For data analysis, SPSS-11-5 software system, chi-square and T-test were used. P-value <0.05 was considered significant.

Results: Based on EPQ, personality instability was significantly more frequent in infertile women in comparison to fertile women ($p< 0.001$). Housewives are at higher risk of developing personality instability as compared to working women. This finding was also statistically significant ($p< 0.001$). **Conclusion:** Considering the high prevalence of personality disorders among infertile women, it seems that more serious attention is required from gynecologists, psychiatrists and psychologists for better treatment of these disorders. The use of psychotherapy, especially supportive methods, should be considered as part of the general therapeutic framework of infertility.

Keywords: Eysenck personality test (EPQ)

RUSSIAN AND THAI PHRASEOLOGICAL UNITS WITH THE COMPONEBT “HEAD”

Siwaporn Boonruang

Department of Russian Language, Lomonosov Moscow State University, Moscow, Russia E-mail: siwa.boonruang@gmail.com

ABSTRACT

The article is devoted to current interest of cross-cultural communication and comparative research on Russian and Thai idioms, which are constricted in different language systems. Cultural and national idiom specifications are being discussed worldwide. This analysis is aimed to the different and mutual understanding on lexical, semantics structure, internal form and gestures.

Keywords — cross-cultural homonym, cross-cultural synonym, gesture, head, internal form

In phraseological fund with the component “head” of the Russian and Thai languages is collected as 108 units in Russian language and almost 70 units in Thai language.

The Russian and Thai phraseological units differ on the morphological syntactic characteristics, the internal form, the functions and the nominations that “head” refers to “ the upper part of body not only of a person, but also of an animal”. In the Russian language there are types of head known as *глава (glava), голова (golova),* and *головушка (golovushka).* Also in the Thai language “head” is represented as หัว *(huua),* เกล้า *(glaao),* and เศียร *(siien).* Both in Russian and in Thai languages include the metonym system as “part – whole” (e.g. Russian - *голова (golova)* refers to the whole: *дурная (durnaya), бедовая (bedovaya), дубовая (dubovaya), свежая (svezhaya), светлая (svetlaya) голова (golova).* Thai – หัว *(huua)* refers to the whole: หัวที่อ *(huua-tuu),* หัวใส *(huua-sai).* Such idioms are always predicates. In the Thai idioms for “head” represents a nominative metaphor in many cases, e.g. หัวก่ายท้ายเกย (huua-gaay-taay-goey) - 'head lay, back block'. Here a front part of a boat is compared with head; หัวแก้วหัวแหวน • • • • • • • • • • • • • (huua-kaeo-huua-van) – 'head crystal, head ring ' referring to beloved ones; หัวกะทิ (huua-ga-ti) – 'head coconut milk ' is from the first extract of coconut milk. As a predicate, idioms serve for quality designation and person characteristics.

Comparative language subsystems of different language structures always cause special difficulties. They present by semasiological approach, that is “from a form to a meaning”. In Thai language, it is not simple to allocate phraseological adhesions, units, and combinations as in Russian. In these conditions it is necessary to base on such features as reproducibility, inequality between a meaning that reflects in an idiom and its final meaning for usage from one and other characteristics.

The internal form has an absolutely special role. The internal form of phraseological units is relating with nature, geography, history, culture of the country. As a part of idioms you can see belief, flora and fauna, jewelry, food, household items, folk and religious beliefs and arts. The internal form opens access to national and specific knowledge of the world and specific feature of national mentality. Only in rare instances that it is possible to speak about coincidence of an internal form in Russian and Thai phraseological units, e.g. Russian. Опилки в голове (opilki v golove: sawdust in head) and in Thai. หัวขี้เลื่อย (huua-khii-loey: sawdust head); Thai idioms, e.g. นกสองหัว (nok-song-huua: two-headed bird) means a person, who considers situation carefully on every side and try to take advantage from it; หัวเหาเต่าเลื่น (huua-hao-tao-len: head lice turtle bug) – unexperienced person; หัวสูงเหมือนกิ้งก่าได้ทอง • (huua-soong-meuan-ging-ga-dai-tong: head high like salamander get gold) - a haughty person. These examples clearly demonstrate not only do we need to study the internal form (language itself), but also external (cultural and historical) semantics. In the comparative researches on phraseology it is accepted to speak about the interlingual (cross-cultural) synonyms and a homonyms, e.g. Russian. не иметь где голову (главу) преклонить (ne imet' gde golovu (glavu) preklonit': not to have where

to bend head) and Thai. หัวเดียวกระเทียมลีบ (huua-deo-gra-tiem-leep: head one garlic deflated); Russian. дать голову на отсечение (dat' golovu na otsechenie: to give head to cut) and Thai. เอาหัวเป็นประกัน (au-huua-pen-pra-gan: to take head as pledge). At the same time, Russian на голову выше (na golovu vyshe: on head high) and Thai. เหนือหัว (neua-huua: above head) which means the King. Another example is that Russian idiom ' выдавать/выдать [себя]с головой' (vydavat'/ vydat' [sebya] s golovoj: to give [oneself] away) and Thai idiom 'ถวายหัว' (tha-vaay-huua: to give head), V. M. Mokiyenko offers two explanations of this Russian idiom. On one hand it refers to the East-Slavic idiom which means 'to give oneself completely to someone's hand', referring to crime or punishment means. The other explanation by V.M. Mokiyenko is that the situation of a crime and punishment means. Another explanation of V. M. Mokiyenko is that the Russian idiom evolved from one of the meanings of the verb 'to give is to take part in, to make a slip'. Also the prepositional phrase 'with head' means 'completely, entirely, without remaining balance'. Therefore the Russian somatic idiom concepts has to be considered as a phraseological unity, as each of the components is characterized by the free use, but the meaning of this idiom does from combining parts meaning. A phraseological unit 'to give [oneself] with head' means 'to notice in something e.g. his missing part miss, an error, an oversight'. There is also the same form in the Thai idiom 'ถวายหัว' (tha-vaay-huua: to give head). However its meaning is completely different from the Russian one. It means to work constantly, without taking a break. By lexical and formal similarity of two units both in Russian and Thai languages we can note that there is a cross-cultural homonym phenomenon.

A cross-cultural synonym in many languages, if it is not deceptive in most cases, its meaning similarity does not mean similarity in the use at all. Noting the connection between idioms and situations, V. N. Teliya emphasizes that there is thin differentiation of these situations in phraseological units. She notices that an idiom's meaning is wider than direct lexical description of the same situation. It contains not only data on a situation, but also the relation between a speaker/listener to a situation [V.N. Teliya 1996: 214-237]. This component is partially considered in the stylistic characteristic of idioms (the idiom with "head" in the basis of daily basis use or colloquial). However, it is necessary to look into communicative situation, social status of communicators, relationship between a speaker and a listener, etiquette, and norms. The ethical and moral doctrine of the Buddhism is one of the main factors in Thai behavior. It is implanted in the Thai phraseology. This is a kind of behavior ("a discourse implicature") which is stored in a language consciousness in a bright and figurative form [• • • • • • Penkhae Wajjanasunthorn • • • • • • • • • 2530: 26]. They define an opportunity to include that "relation to a situation" is allocated by V. N. Teliya.

In theoretical aspect the comparative research is directed to detection of patterns. As for the practical analysis, it is about drawing up a lexical portrait of phraseological units, everything is much more difficult, but also it is more interesting as to what is not considered in the theory. I would like to share some observations on the phraseological units including "head" which reflects gestures (e.g. to nod, to swing, to shake). For the last few decades sign language in different culture became a subject of a detailed research of linguists and culturologists. In the relation to gestures, sign phraseological units, and cross-cultural synonyms (semasiological approach – from a form to a meaning) and a cross-cultural homonyms (onomasiological approach – from a sense to a form) they allocate the standard forms of gestures, inherent in the majority of cultures (such universal gesture e.g. to nod). The detailed description of kinetic gestures in a compartment with the sign phraseological units is found in G. Kreydlin's monograph (Kreydlin 2002). G. Kreydlin devoted his special attention to gestures-emblems (communicative type to incline head, to shake head and to symptomatic kinetic gestures, e.g. to pull in head (in shoulders), which correspond to sign phraseological units [Kreydlin 2002:115].

When it comes to the Russian idiom 'втягивать/втянуть голову в плечи' (vtyagivat'/ vtyanut' golovu v plechi: to pull head to shoulders with the sign phraseological units is found in G. Kreydlin's monograph (Kreydlin 2002). G. Kreydlin devoted his special attention to gestures-emblems (communicative type to incline head, to shake head and to symptomatic kinetic gestures, e.g. to pull head to a shoulders, which correspond to sign phraseological units [Kreydlin 2002:115].

When it comes to the Russian idiom 'втягивать/втянуть голову в плечи' (vtyagivat'/ vtyanut' golovu v plechi: to pull head to shoulders, e.g. Женщины втягивают голову в плечи и робко направляют взгляд снизувверх, уподобляясь черепахе. (Oni (vysokie zhenshchiny) vtyagivayut golovu v plechi i robko napravlyayut vpglyad snizu vverkh: They (tall women) pull head to shoulders and look up and down, similar to a turtle. Here the turtle appears in a comparison context. Both phraseological units have the same

meaning 'to be frightened, to feel danger'' and in this meaning are interlingual synonyms.

To compare the Russian idiom кивать/ кинуть головой (kivat'/ kinut' golovoi: to nod by head) and the Thai unit is พยักหน้า (pa-yak-naa: to nod). Formal distinctions show that Russian language is a phrase while in Thai language is a verb. In both languages it is about communicative gesture which means a consent and confirmation. Therefore they are synonymous. One more interesting point is that a Thai word can be altered in such a way that its meaning (in fact is phraseological meaning) cannot be correlated to communicative gesture, e.g. ก้มหน้าก้มตา (gom-naa-gom-taa: to nod face to nod eye), which means 'to work with full concentration, without noticing the events nearby' (at the same time a combination such ก้มตา (gom-taa: to nod eye) is not possible in Thai language). While ก้มหัว (gom-huua: to nod by head) matches with the Russian phraseological unit, but it is 'not to give in', 'not to bow'. These examples show how phraseology is connected with the language system instrument and at the same time show an opportunity for the sign phraseological unit to become some kind of internal form in the phraseological unit with other meaning. I would like to demonstrate one more idiom in Russian 'качать/покачать головой' (kachat'/ pokachat's golovoj: to shake head). This idiom has three meanings as following: to express doubts (to shake head from one side to another side), to express disagreement with something, and to express disapproving surprise. For the first meaning, it represents metonym transfer, which is connected with the internal condition of a person [Gvozdarev 1977: 88]. For the second meaning, it is motivated by gesture, which originally came from milk feeding to baby during feeding, when a baby turns a head from mother's breast to the right and to the left [KEF 1979: No. 4, 78]. The third meaning is from the gesture which arose as a swing from being shocked by messages or actions [KEF 1979: No. 4, 78]. G. E. Kreydlin carried out research about nonverbal semiotics in detail [Kreydlin 2002: 20]. There are expressions as 'ส่ายหัว (sai-huua: to shake head)' and 'ส่ายหน้า (sai-naa: to shake face)' as the Thai gesture. This kinetic gesture refers to doubt, disagreement, and also such desire which cannot be realized.

Cross-cultural communication defines a relevance of comparative and typological researches of idiomatic fund for languages, which have different systems. Russian and Thai languages have a national and specific phraseological image of the world, in which the important place is allocated to idioms with the head component. The careful analysis of the Russian and Thai idioms with this component allows to develop the recommendations relating to mutually convertibility and cross-cultural understanding.

References

1. G. E. Kreylkin, *Nonverbal Semiotics: Body Language and Natural Language*, Moscow: Novoye Literaturnoye, 2002.
2. V. N. Teliya, *Russian Phraseology: Semantics, Pragmatics and Linguacultural Aspects*, Moscow: Yazyki Slavyanskoy Kul'tury, 1996.
3. A. N. Baranov, D. O. Dobrovol'skiy, *Aspects of Phraseology Theory*, Moscow, Znak, 2008.
4. A. N. Baranov, D. O. Dobrovol'skiy, *The Introduction of Phraseology*, Moscow, NAuka Flinta, 2013.
5. K. Vijitrmatra, *Thai Idioms*, Bangkok, Bamrungsasna, 1979.
6. P. Wajjanasunthorn, *Social Value in Thai Idioms*, Bangkok, Odean Store, 1987.

DEMAND FORECASTING FOR SUPPLY CHAIN: MULTI-GENERATION TECHNOLOGY DIFFUSION MODEL WITH CAPACITY RESTRICTION

Eldor Makhmudov*, Donhgee Kim, Jungsuk Oh*****

** Eldor Makhmudov, Master's Student, Business School, Seoul National University,*
1 Gwanak-ro, Gwanak-ku, Seoul, Korea
E-Mail: emakhmudow@gmail.com
*** Donghee Kim, Ph.D., Business School, Seoul National University,*
1 Gwanak-ro, Gwanak-ku, Seoul, Korea
E-Mail: kehdhd@snu.ac.kr
**** Jungsuk Oh, Associate Professor, Business School, Seoul National University,*
1 Gwanak-ro, Gwanak-ku, Seoul, Korea
E-Mail: joh@snu.ac.kr

ABSTRACT

This study aims to construct a forecasting model for supply chain where multi-generation technology, introduced in various intervals of time, is used to produce the same product but with better features. To forecast future demands, the model uses historical data on the product incorporating its seasonality, market growth rate, price, capacity restriction and market share factors. By incorporating market share factor, our model individualizes previous industry-based diffusion models, which means that proposed multi-generation technology diffusion model can be utilized for estimation of their firm-related parameters based on their own historical data and conduct forecasts. Empirical part of this study analyzes a case from Korean semiconductor industry. As a result, the study answers the question of whether adding new factors (i.e. capacity restriction) to Chien et al.'s SMPRT model will affect the forecasting accuracy and how good the model will fit in the individual level.

Keywords— Capacity, Diffusion, Forecast Accuracy, Multi-generation, Supply Chain Management,

1. INTRODUCTION

The primary objective of this study is to construct multi-generation technology diffusion model[1] for supply chain, incorporating seasonal factor, market growth rate, price, technology substitution[2], capacity restriction, and market share factors[3]. And the implication is to obtain more accurate forecasts using the historical time series data and the set of estimated parameters obtained from the model with the nonlinear least square method. Moreover, by incorporating market share factor this model individualizes previous industry-based models which means that proposed multi-generation technology diffusion model with capacity restriction will be available to individual firms to use it in estimation of their firm-related parameters based on their historical data and conduct their own forecasts. Empirical part of this study analyzes a case from Korean semiconductor industry – historical sales data of OM Semiconductors Co, Ltd[4]. Our study explores whether adding new factors to Bass model based SMPRT model of [1] will affect the forecasting accuracy and how good the model will fit in the individual level.

[1]Based on extension of diffusion models in [1]-[4].

[2]Seasonal factor, market growth rate, price, technology substitution are factors used in [1].

[3]Capacity restriction and market share are extensions of this study as recommended in [1], pp. 508.

[4] The name of the company is changed along with the data coding to protect company's confidential information and commercial secrets.

2. LITERATURE REIVEW

2.1. Diffusion of successive generations of technology

Bass specified the probability of adoption as a linear function of the total market potential M, the coefficient of innovation p (advertising effect or external influence) and the coefficient of imitation q (word-of-mouth effect or internal influence). Thus,

$$P(t) = p + (q/M)Y(t) \quad (1)$$

where $Y(t)$ is the number of previous adopters.

The likelihood of purchase at time t given that no purchase has yet been made is

$$f(t)/\big(1 - F(t)\big) = P(t) = p + (q/M)Y(t) = p + qF(t) \quad (2)$$

where $f(t)$ is the probability density function of adopters at time t and $F(t)$ is the cumulative density function at time t.

$$F(t) = \int_0^t f(\tau)\, d\tau,\ F(0) = 0 \quad (3)$$

Since $f(t)$ is the likelihood of purchase at time t and M is the total number purchasing during the period for which the density function was constructed,

$$Y(t) = \int_0^t S(\tau)d\tau = M\int_0^t f(\tau)d\tau = MF(t) \quad (4)$$

is the total number of purchasing in the interval $(0, t)$. Therefore, sales at *t* is equal

$$S(t) = Mf(t) = P(t)[M - Y(t)] = \Big[p + q\int_0^t S(\tau)d\tau\,/M\Big]\Big[M - \int_0^t S(\tau)d\tau\Big] \quad (5)$$

Expanding this, we have

$$S(t) = pM + (q - p)Y(t) - (q/M)[Y(t)]^2 \quad (6)$$

.

Diffusion of successive generations of technology is one of the most important extensions of Bass model [4]. Reference [3] extended the original Bass model by incorporating substitution effects to describe diffusion in sales for successive generations. For empirical research they had used series of generations of mobile telephones and personal computers. Each generation of the technology attracts incremental population segments of potential adopters. For example, the Norton and Bass model in two generations can be expressed as

$$s_1(t) = F_1(t)M_1[1 - F_2(t - \tau_2)] \text{ for } t > 0 \quad (7)$$

$$s_2(t) = F_2(t - \tau_2)[M_2 + F_1(t)M_1][1 - F_3(t - \tau_3)] \text{ for } t > \tau_2 \quad (8)$$

where τ_i is the introduction time of generation *i*, $\tau_i \geq 1$, $s_i(t)$ the sales of generation *i* at time *t*, and $F_i(t)$ the cumulative density function at time *t*, as in (9):

$$F_i(t-\tau_i) = \begin{cases} \frac{(1-e^{-(t-\tau_i)(p+q)})}{((q/p)e^{-(t-\tau_i)(p+q)}+1)}, & t \geq \tau_i \\ 0, & t < \tau_i \end{cases} \tag{9}$$

Reference [5] extended the Norton–Bass model by incorporating price factor to the model and demonstrated their empirical results on data from fluid milk packaging sector. Furthermore, they incorporated one more factor that can influence demand such as market growth rate.

$$F_i(t) = \frac{(1-e^{-t(p+q)})}{((q/p)e^{-t(p+q)}+1)} exp\left[-\eta\left(\frac{\mathrm{pr_i(t)}}{\mathrm{pr(t)}}\right)\right] exp[-kt] \tag{10}$$

$$pr(t) = \frac{pr_1(t)S_1(t)+pr_1(t)S_1(t)+\cdots+pr_i(t)S_i(t)}{S_1(t)+S_1(t)+\cdots+S_i(t)} \tag{11}$$

where $pr_i(t)$ is the price of generation *i* at time *t*; $pr(t)$ is the market price of the product category; η the coefficient of the price sensitivity; *k* is the market growth rate.

Optimal pricing strategies in the presence of multi-generation substitution effects were studied by [6]. According to their research the nature of the producer, the degree of cannibalization by the newer product of the old, and the degree of foresight of the producer are main moderators of the optimal pricing. Reference [7] examines the price factor performance in different models: Bass model, generalized Bass model and, a proportional hazards model which incorporates a Bass model of the baseline adoption. The results they obtained are the following: "the proportional hazards approach provided a superior fit to the generalized Bass model, which failed to detect a price effect. The evidence that a skimming price policy was used and was consistent with the Bass parameters was found. Lowering the price of the earlier generation increased take-up of that generation and led to greater take-up of the succeeding generation because of the greater number of subscribers. Further, lowering the price of the succeeding generation led to a greater take-up of this generation while causing a proportionately smaller decrease in take-up of the earlier generation". Another way to consider price factor in multi-generation model was suggested by [8]. They assume that adopter's decisions when to upgrade a later generation of technology are based on utility maximization problem. In this problem, the probability of adoption is a function of the utility of the adopter, which is in turn a function of the product price.

Another extension of Norton-Bass model was proposed by [9]. At the same time, incorporating methodology the processes of diffusion and generation substitution they allow adopters of early generations to skip several generations and adopt directly the generation they want. They demonstrated their model using four successive generations of IBM mainframe computers where the fit to actual data was quite high.

The assumption made by previous models about the constancy of coefficients of innovation and imitation over successive generations was relaxed by [2]. They found that *p* and *q* change across successive generations in a multi-national mobile telephone adoption study: the coefficient of imitation (*q*) tended to increase from generation to generation. According to the results derived by this study, use of a model with inconstant coefficients would considerably improve forecasting accuracy.

2.2. SMPRT Model

The current approach we are going to review is SMPRT multi-generation diffusion model of [1].

SMPRT is a multi-generation diffusion model for semiconductor product demand forecast that incorporates seasonal factor (S), market growth rate (M), price (P), repeat purchases (R), technology substitution (T). The empirical study conducted by [1] based on real data had shown significant goodness of fit and validated practical viability of SMPRT model to accurately forecast the demands for semiconductor products.

Reference [1] uses the following notation to illustrate his model:

$F_i(t)$	the cumulative density function at time t for generation i
$f_i(t)$	the probability density function at time t for generation i
p_i	the coefficient of innovation for generation i
q_i	the coefficient of imitation for generation i
M_i	total market potential for generation i, $M_i = \rho_i m_i$
τ_i	the introduction time for generation i, $\tau_i \geq 1$
$s_i(t)$	the actual sales of products at time t for generation i
$\hat{s}_i(t)$	the estimated sales of products at time t for generation i
$X_i(t)$	the cumulative market effects
β	the effectiveness of the price
$pr_i(t)$	the price at time t for generation i
α_t	the seasonal factor at time t
g_t	the growth rate at time t
n	the number of generations
l	the number of periods

Reference [1] uses nonlinear least-square estimation methodology where the objective of the estimation procedure is minimization of the sum of squared error:

$$Min \sum_{i=1}^{n} \sum_{t=1}^{l} [s_i(t) - \hat{s}_i(t) \times \alpha_t \times \exp(g_t)]^2$$

subject to

$$\hat{s}_i(t) = f_i(t)\left[M_i + f_{i-1}(t)\left[M_{i-1} + f_{i-2}(t)[M_{i-2} + \cdots f_2(t)[M_2 + f_1(t)M_1] \ldots]\right]\right][1 - f_{i+1}(t)]$$

$$f_i(t) = F_i(t) - F_i(t-1)$$

$$F_i(t) = \begin{cases} \dfrac{(1 - e^{-(X_i(t) - X_i(0))(p_i + q_i)})}{((q_i/p_i)e^{-(X_i(t) - X_i(0))(p_i + q_i)} + 1)}, & t \geq \tau_i \\ 0, & t < \tau_i \end{cases}$$

$$X_i(t) = (t - \tau_i + 1) + ln(pr_i(t)/pr_i(0))\beta$$

$$\alpha_t \geq 0, \qquad g_t = const$$

$$0 < p_i < 1, \qquad 0 < q_i < 1$$

$$M_i > 0,$$

$$\forall i = 1,2, \ldots, n$$

(12)

The solution to this problem is the estimation of parameters including the total market potential (M), coefficient of innovation (p_i), coefficient of imitation (q_i), seasonal factor (α_t), and price effectiveness (β). Here, by estimating β we can easily calculate $X_i(t)$ which stands for the cumulative market effects. The same way, by estimating parameters p_i and q_i and knowing $X_i(t)$ we find $F_i(t)$ and $F_i(t-1)$.

3. MULTI-GENERATION TECHNOLOGY DIFFUSION MODEL WITH CAPACITY RESTRICTION

3.1. Problem Defintion

It is great of importance for marketers to know provisional quantity of production, which they can realize in the near future in one hand, to have enough of the products in inventory, and in another, not to overload warehouses, that is especially if product life cycle is short. Beside the physical characteristics, product life cycle depends on many external factors such as technology progress.

Capacity planning and the associated capital investment are critical strategic decisions in capital-intensive industries such as semiconductor manufacturing industry ([1]). This study suggests that the "capacity restriction" factor incorporated to the model can provide marketers with more transparent updated information on the current situation of capacity utilization and assist them in better capacity planning in the future.

All previous multi-generation diffusion models listed above deal with the industry-based sales. However, it is true that marketers are mostly interested in their own product sales. Therefore, this study is focused on building more individualized model.

3.2. Problem Defintion

The current study intends to extend SMPRT diffusion model of [1] to consider several additional factors that influence product sales such as capacity restriction and market share. In fact, the idea to incorporate these factors was derived from the recommendation by [1] as a future research. Thus, new notations are:

$C_i(t)$	the capacity restriction regarding the product at time t for generation i
$\mu_i(t)$	the market share at time t for generation i
$S_i(i)$	the sales potential for generation i at time t, $S_i(t) = \mu_i(t)M_i$

Capacity restriction: The study predicts that incorporating $C_i(t)$ will help obtain more accurate forecasts and provide valuable forecasting information for support capacity planning decisions and manufacturing strategies. To examine this phenomena the model will be tested with incorporating $C_i(t)$. Tests will be run several times with different sets of data in order to compare results.

The way how capacity restriction factor can be incorporated within the given minimization problem is described below.

$$min[\hat{s}_i(t)\times\alpha_t\times \exp(g_t)\,, C_i(t)] \tag{13}$$

Within the minimization problem we will have

$$Min \sum_{i=1}^{n}\sum_{t=1}^{l}\left[s_i(t) - min[\hat{s}_i(t)\times\alpha_t\times \exp(g_t)\,, C_i(t)]\right]^2 \tag{14}$$

Market share: The second factor $\mu_i(t)$ is used in conversion of industry-based SMPRT model of [1] into the individual scale. It means that proposed multi-generation technology diffusion model with capacity restriction will be available to individual firms to use it in estimation of their firm-related parameters based on their own historical data and conduct forecasts[5]. To do so, the total market potential M of a product, which is industry-based value in SMPRT of [1], should be transformed into the firm-based Sales Potential $S_i(t)$. It is done by the formula:

$$S_i(t) = \mu_i(t) M_i \tag{15}$$

Here, the total size of the potential market for the individual product or product line can be found through estimation. Secondly, the market share at time t for generation i can be calculated knowing firm's market share over the time and sales data per each technology generation.

Incorporating firm's sales potential for generation i at time t, $S_i(t)$ into the model will give

$$\hat{s}_i(t) = f_i(t)\left[S_i(t) + f_{i-1}(t)\left[S_{i-1}(t) + f_{i-2}(t)[S_{i-2}(t) + \cdots f_2(t)[S_2(t) + f_1(t)S_1(t)] \ldots]\right]\right][1 - f_{i+1}(t)] \tag{16}$$

To use the model fully for future forecasting it is necessary to forecast the causal factor such as market share, before one can forecast sales ([11]). Recent values of market share are important for forecasting due to the fact that firm can have different positions in terms of market share in the total market in different years. By this reason, 3-year moving average method[6] was applied in market share forecasting in this study (3-year moving average method showed better performance for existing data than applied 5-year MA).

Other five factors that influence demand versus sales are similar to the original Chien et al.'s SMPRT model: seasonality factor, market growth rate, price, repeat purchases, and technology substitution effect.

Seasonal factors: Cyclic fluctuation of demand over the time period has its impact practically in any business. The majority of the products and, consequently, markets are affected by seasonality factor.

Market growth rates: Rate of growth of the market is defined as the average value of rates of growth of various segments of the market in which the individual firm operates. Firm can use the market growth rate when evaluating the performance of its particular product in a particular market. Demand is positively correlated with the market growth rate (Chien et al., 2010).

To express two parameters, seasonal factor and the market growth rate, the proposed model uses a multiplicative method.

$$\hat{s}_i(t) \times \alpha_t \times \exp(g_t) \tag{17}$$

Price :. According to [1] the price effect is also important in the case of multi-generation products. Pricing strategy considers both stages of product life cycle and the substitution of newer generation products. As newer generation products are introduced to the market, their prices affect customer purchase decisions. Customer behavior changes according to whether the price is expected to increase or decrease in the future.

$$F_i(t) = \frac{(1 - e^{-\left(X_i(t) - X_i(0)\right)(p_i + q_i)})}{((q_i/p_i)e^{-\left(X_i(t) - X_i(0)\right)(p_i + q_i)} + 1)} \tag{18}$$

[5] Previous literatures show the possibility of Bass model's application within the individual firm (e.g., [10]).

[6] Moving average method – technique that averages a number of recent actual values, updated as new values become available.

$$X_i(t) = (t - \tau_i + 1) + ln(pr_i(t)/pr_i(0))\beta$$

(19)

Repeat purchases: Repeat purchase refers to the number or percent of customers who purchase a second time or the frequency of their repurchasing decision. This factor had been incorporated into major existing previous multi-generation diffusion models ([3], [5], [2], [12], [7]).

Technological substitution effect: The increase of manufacturing system efficiency, perfection of economy structure and maintenance of economic growth are highly dependable on this factor. Due to a growing competitive environment newer technologies are continually introduced into the market especially in IT related sectors. The introduction of newer technologies increases the market potential growth and makes the buyers of older technologies to buy new ones to replace the old ones. Most forecasting methods only focus on new products while ignoring older generation products that might compete with new products ([1]).

Finally, we can build a complete model using described parameters and definitions:

Multi-Generation Technology Diffusion Model With Capacity Restriction:

$$Minimize \sum_{i=1}^{n} \sum_{t=1}^{l} \left[s_i(t) - min[\hat{s}_i(t) \times \alpha_t \times \exp(g_t), C_i(t)] \right]^2$$

subject to

$$\hat{s}_i(t) = f_i(t) \left[S_i(t) + f_{i-1}(t) \left[S_{i-1}(t) + f_{i-2}(t) [S_{i-2}(t) + \cdots f_2(t) [S_2(t) + f_1(t) S_1(t)] \dots] \right] \right] [1 - f_{i+1}(t)]$$

$$f_i(t) = F_i(t) - F_i(t-1)$$

$$F_i(t) = \begin{cases} \dfrac{(1 - e^{-(X_i(t) - X_i(0))(p_i + q_i)})}{((q_i/p_i) e^{-(X_i(t) - X_i(0))(p_i + q_i)} + 1)}, & t \geq \tau_i \\ 0, & t < \tau_i \end{cases}$$

$$X_i(t) = (t - \tau_i + 1) + ln(pr_i(t)/pr_i(0))\beta$$

$$\alpha_t \geq 0, \qquad g_t \geq const$$

$$0 < p_i < 1, \qquad 0 < q_i < 1$$

$$S_i > 0,$$

$$\forall i = 1,2, \dots, n$$

(20)

The problem is solved using the same bottom-up algorithm as used in SMPRT model of [1], but with the estimation of the following parameters: total market potential (M), coefficient of innovation (p_i), coefficient of imitation (q_i), and price effectiveness (β).

4. EMPIRICAL STUDY

4.1. Data Source: Case from Korean Semiconductor Industry

Korea is considered to be one of the largest exporters of semiconductor-based products in the world. The Korean semiconductor industry consists of more than 250 companies (source: Korea Semiconductor Industry Association). These companies can be divided into three big groups[7]: (1) semiconductor chip makers, which include integrated device manufacturers, contract suppliers, and assembly firms. (2) Equipment/materials providers, (3) Fabless makers include small-size firms.

[7] Source: KOTRA

4.2. Data Preparation

The database that includes noisy, missing, or inconsistent historical sales/demand data is the base for inaccurate or wrong forecasting results. Assuring the data quality is necessary for improving the model effectiveness, and thus data preparation can be used to improve the quality of the data and construct an effective demand forecasting model ([1]).

Data collection, cleaning, and integration are the main stages in data preparation. As stated previously, all empirical data used in this study was derived from historical database of OM Semiconductor Co and iSuppli database. In order to protect company's confidential information, additional data coding was executed.

Table 1

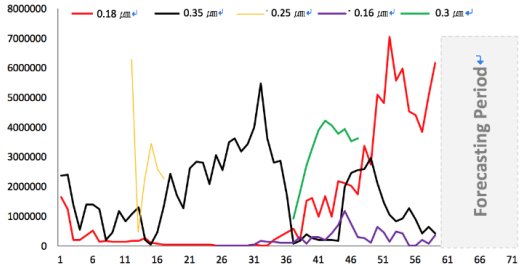
Data Preparation

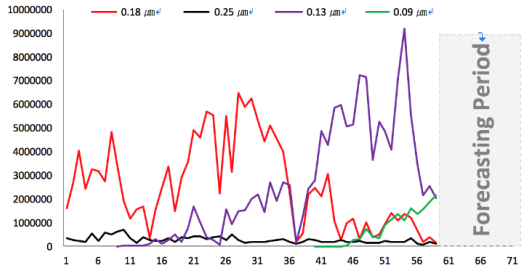
Periods (actual data, month)	1, 2, 3, …, 59	
Periods (forecast)	60, 61, …, 71 (12-step ahead)	
Missing Data	- Delete rows missing more than 15% of fields - Replace missing data based on a linear regression from the other present fields	
Product/Technology Generation/(Technology Generation Introduction Time)	LDI: 0.18 μm (1) 0.35 μm (1) 0.25 μm (12) 0.16 μm (25) 0.3 μm (37)	Flash: 0.18 μm (1) 0.25 μm (1) 0.13 μm (9) 0.09 μm (40)

As shown in Table I, obtained data consists of 59 periods with one cycle in every 12 periods. This study aims to find 12-step ahead forecasting results using the developed multi-generation diffusion model. In the process of data preparation missing data was dealt in the following way: rows missing more than 15% of fields were deleted. In other case, missing data was replaced based on a linear regression from the other present fields. As a part of data integration all required data for analysis was placed into one data sheet.

Fig. 1 illustrates historical demand for semiconductor product LDI and Flash respectfully under different technologies.

Figure 1 Demand for semiconductor product LDI and Flash under different technologies.





4.3. Problem Formulation

To conduct complete evaluation of developed model in Section 3, the study runs the model two times for different data sets, particularly for semiconductor product LDI and product Flash.

1) Product LDI. Total five technology generations were activated in production of semiconductor product LDI over given 59 periods. These generations were introduced, as it shown in Table I, in periods 1, 1, 12, 25 and 37. In the language of the model it will correspond to $\tau_1 = 1, \tau_2 = 1, \tau_3 = 12, \tau_4 = 25,$ and $\tau_5 = 37$. The model for semiconductor product LDI in this empirical case study is presented as follow:

$$Minimize \sum_{i=1}^{5}\sum_{t=1}^{59}\left[s_i(t) - min[\hat{s}_i(t)\times\alpha_t\times \exp(g_t), C_i(t)]\right]^2 \quad (23)$$

subject to

$$\hat{s}_1(t) = f_1(t)S_1(t)[1 - f_2(t)]$$

$$\hat{s}_2(t) = f_2(t)[S_2(t) + f_1(t)S_1(t)][1 - f_3(t)]$$

$$\hat{s}_3(t) = f_3(t)\left[S_3(t) + f_2(t)[S_2(t) + f_1(t)S_1(t)]\right][1 - f_4(t)]$$

$$\hat{s}_4(t) = f_4(t)\left[S_4(t) + f_3(t)\left[S_3(t) + f_2(t)[S_2(t) + f_1(t)S_1(t)]\right]\right][1 - f_5(t)]$$

$$\hat{s}_5(t) = f_5(t)\left[S_5(t) + f_4(t)\left[S_4(t) + f_3(t)\left[S_3(t) + f_2(t)[S_2(t) + f_1(t)S_1(t)]\right]\right]\right]$$

$$f_i(t) = F_i(t) - F_i(t-1)$$

$$F_i(t) = \begin{cases} \dfrac{(1 - e^{-(X_i(t)-X_i(0))(p_i+q_i)})}{((q_i/p_i)e^{-(X_i(t)-X_i(0))(p_i+q_i)} + 1)}, & t \geq \tau_i \\ 0, & t < \tau_i \end{cases}$$

$$X_i(t) = (t - t_i + 1) + ln\left(\frac{pr_i(t)}{pr_i(0)}\right)\beta \ ,$$

For i=1,2,3,4,5, $\tau_1 = 1, \tau_2 = 1, \tau_3 = 12, \tau_4 = 25, \tau_5 = 37$

$\alpha_t \geq 0, \quad g_t \geq 0, \quad 0 < p_i < 1, \quad 0 < q_i < 1, \quad S_i > 0,$

2) Product Flash. Total four technology generations were activated in production of semiconductor product Flash over given 59 periods. These generations were introduced, as it shown in Table I, in periods 1, 1, 9 and 40 ($\tau_1 = 1, \tau_2 = 1, \tau_3 = 9, \text{and } \tau_4 = 40$). The model for semiconductor product Flash:

$$Minimize \sum_{i=1}^{4} \sum_{t=1}^{59} \left[s_i(t) - min[\hat{s}_i(t) \times \alpha_t \times \exp(g_t), C_i(t)] \right]^2 \quad (24)$$

subject to

$$\hat{s}_1(t) = f_1(t) S_1(t)[1 - f_2(t)]$$

$$\hat{s}_2(t) = f_2(t)[S_2(t) + f_1(t) S_1(t)][1 - f_3(t)]$$

$$\hat{s}_3(t) = f_3(t)\left[S_3(t) + f_2(t)[S_2(t) + f_1(t) S_1(t)]\right][1 - f_4(t)]$$

$$\hat{s}_4(t) = f_4(t)\left[S_4(t) + f_3(t)\left[S_3(t) + f_2(t)[S_2(t) + f_1(t) S_1(t)]\right]\right]$$

$$f_i(t) = F_i(t) - F_i(t-1)$$

$$F_i(t) = \begin{cases} \dfrac{(1 - e^{-(X_i(t) - X_i(0))(p_i + q_i)})}{((q_i/p_i) e^{-(X_i(t) - X_i(0))(p_i + q_i)} + 1)}, & t \geq \tau_i \\ 0, & t < \tau_i \end{cases}$$

$$X_i(t) = (t - t_i + 1) + ln\left(\frac{pr_i(t)}{pr_i(0)}\right)\beta \ ,$$

For i=1,2,3,4, $\tau_1 = 1, \tau_2 = 1, \tau_3 = 9, \tau_4 = 40$

$$\alpha_t \geq 0, \qquad g_t \geq 0, \qquad 0 < p_i < 1, \qquad 0 < q_i < 1, \qquad S_i > 0,$$

4.4. Parameter Estimation

The set parameters, 16 parameters for product LDI and 13 parameters for product Flash, are obtained from the model with the nonlinear least square method, proposed by Srinivasan and Mason (1986), based on historical data using Risk Solver Platform[8]. These parameters are: total market potential (M_i), coefficient of innovation (p_i)), coefficient of imitation (q_i), and price effectiveness (β). Obtained results for semiconductor products LDI and Flash are:

Estimation results shown in Table II are summarized as follow: For product LDI first four technology generations' coefficients of innovation (p_1,p_2,p_3,p_4) are smaller than coefficients of imitation (q_1,q_2,q_3,q_4) which implies that most adopters for these generations are imitative adopters who are influenced by others.

Estimation results shown in Table II are summarized as follow: For product LDI first four technology generations' coefficients of innovation (p_1, p_2, p_3, p_4) are smaller than coefficients of imitation (q_1, q_2, q_3, q_4) which implies that most adopters for these generations are imitative adopters who are influenced by others.

Table 2

Parameter estimates

Product LDI:

[8]Risk Solver Platform is powerful tool for risk analysis, simulation, and optimization in Excel (www.solver.com).

Parameters	Model
p_1	0.000009
p_2	0.012435
p_3	0.000058
P_4	0.000001
p_5	0.000002
q_1	0.080604
q_2	0.086345
q_3	0.608274
q_4	0.263978
q_5	0.268907
M_1	9.9010E+10
M_2	5.6316E+08
M_3	5.9209E+07
M_4	1.9810E+08
M_5	9.7412E+08
β	-0.1654

Product Flash:	
Parameters	Model
p_1	0.005467
p_2	0.009241
p_3	0.000111
P_4	0.000001
q_1	0.116387
q_2	0.020428
q_3	0.153633
q_4	0.175595
M_1	2.4329E+09
M_2	0.1019E+09
M_3	2.7194E+09
M_4	2.5238E+09
β	-0.3025

For product Flash, as for LDI, all four technology generations' coefficients of innovation (p_1, p_2, p_3, p_4) are smaller than coefficients of imitation (q_1, q_2, q_3, q_4) meaning that most adaptors are imitative adopters who are influenced by others.

The estimated parameters of total market potential for both products LDI and Flash are positive and more relevant to real data. The effectiveness of price β for both products are negative (-0.1654, -0.3025) which means that sales will increase as price decreases.

Tests of statistical significance of these parameters were not conducted by recommendation of Armstrong and Green (2011). Also Schmidt and Hunter (1997) showed that statistical significance is of no value for analyzing forecasting data, even when properly used and properly interpreted. "We have been unable to find a single case where statistical significance has made a contribution to forecasting", – Armstrong (2007). For a comprehensive review of the evidence on the value of tests of statistical significance, see Zihak & McCloskey (2008).

4.5. Demand Forecasting

Having obtained all required parameters, model-based sales are computed and compared with the actual data. Fig. 2 summarizes results. Fig. 3 and Fig. 4 show the forecasting results for product LDI and Flash under different technology generations separately. Dotted lines denote forecast data while full lines – the actual data.

Figure 2

Forecasting results of all technologies

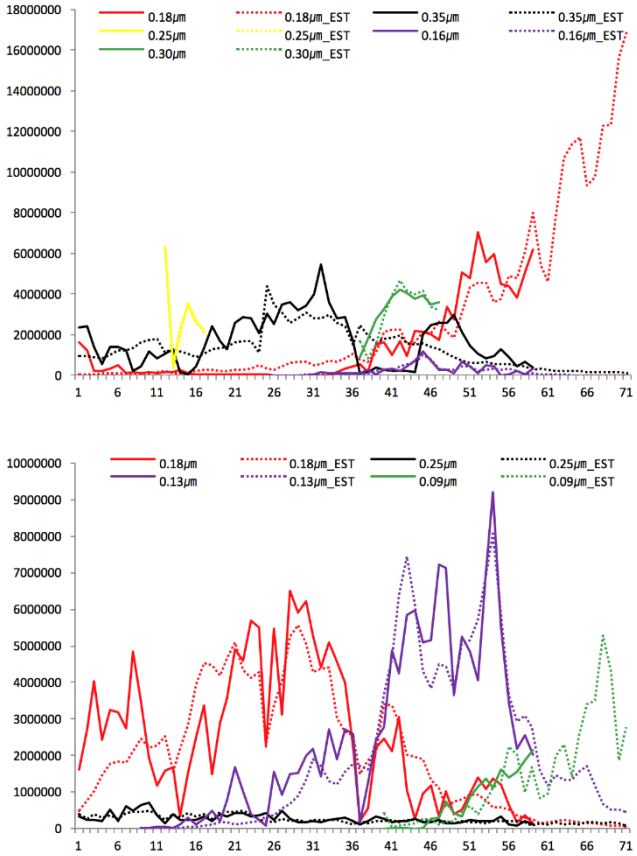


Figure 3
Product LDI

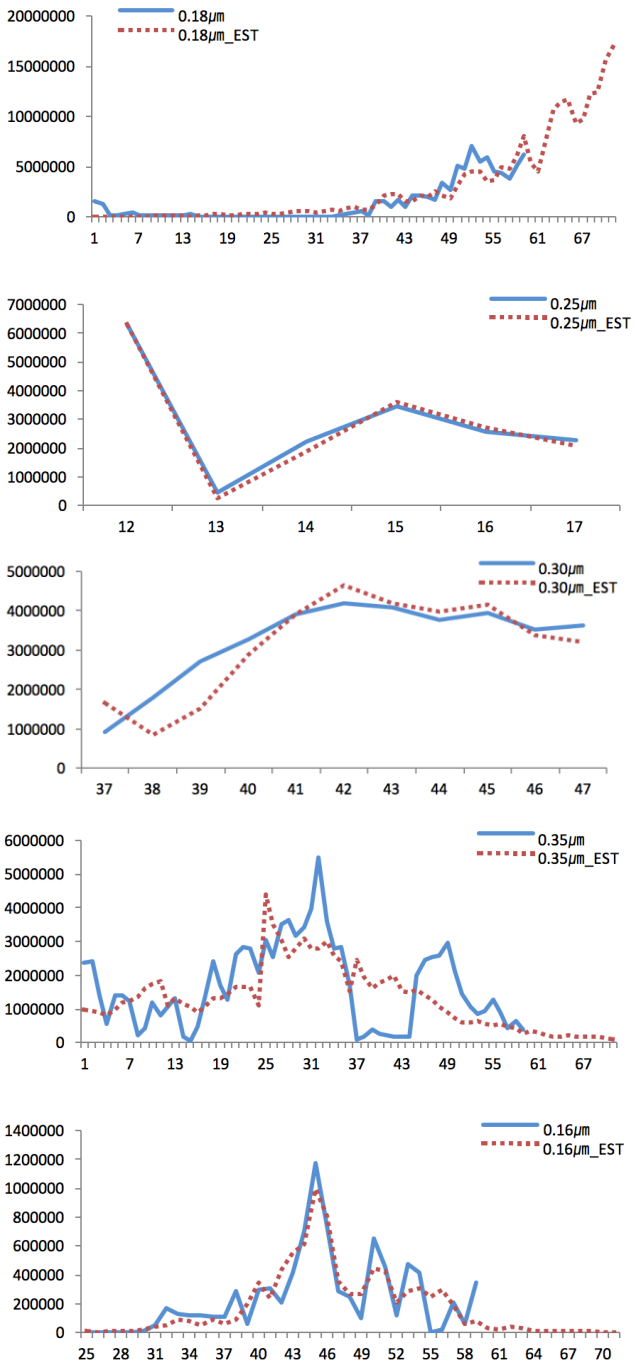
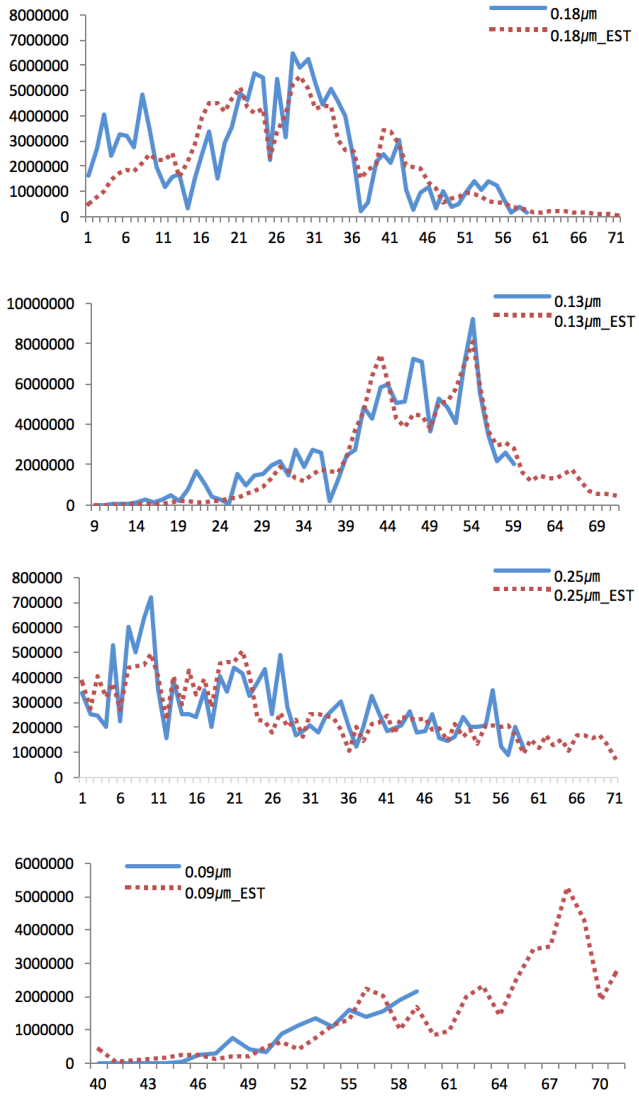


Figure 4

Product Flash



5. RESULT INTERPRETATIONS AND PERFORMANCE EVALUATION

This section conducts result interpretation of empirical findings and discusses performance evaluation of the model. From the Fig. 4, demand for product LDI under technology generation A is growing fast versus the same product under other technologies 0.35μm and 0.16μm, and generates much more sales. The reason to this can be yet popularity of the product under technology generation 0.16μm than under 0.18μm since it was introduced not long time ago, and secondly, the advantage of technology 0.18μm over technology 0.35μm in terms of micron size from the beginning of the initial period. As to product Flash, demand for this product under newer technologies 0.09μm and 0.13μm are gradually increasing due to their better specifications, while for older generations such as 0.18μm and 0.25μm demand is slowly decreasing.

To check the adequacy and reliability of the developed model we should evaluate the degree of conformity of obtained results to actual data by using adjusted coefficient of determination (R2). Table III lists values for adjusted R2 for our empirical findings.

Table 3

Fitness results of the model

Product LDI:		Product Flash:	
Model fit	Adjusted R^2	Model fit	Adjusted R^2
0.18 μm	0.9114	0.18 μm	0.7602
0.35 μm	0.5348	0.25 μm	0.7025
0.25 μm	0.9961	0.13 μm	0.9230
0.16 μm	0.8755	0.09 μm	0.8095
0.3 μm	0.8886	Average	0.7988
Average	0.8413		

The average adjusted R2 for product LDI is 0.8413, and 0.7988 for product Flash. Except LDI's 0.35μm (0.5348), these values demonstrate quite good fit of the model to real data especially for several separate technology generations: product LDI's 0.18μm (0.9114) and 0.25μm (0.9961); and product Flash's 0.13μm (0.9230) and 0.09μm (0.8095).

Above analysis examines the overall data fit between actual data and data obtained from the model. The next step is the evaluation of forecasting performance by model using forecasting error measure as a main criterion. Forecasting error are measured by several indexes such as MSE, MAE, RMSE, MAPE, and MdAPE. Most recent literatures recommend the use of the MAPE (e.g., Hanke and Reitsch, 1995; Bowerman, O'Connell & Koehler, 2004; Lewis, 1982). However, several authors have suggested that the use of the mean absolute percentage error (MAPE) as a measure of forecast accuracy should be avoided because they argue it treats forecast errors above the actual observation differently from those below this value. Additionally, MAPE has disadvantage of being affected by outliers. Therefore, this study proposes using of MdAPE index because it is not distorted by extreme values that may arise from the occasional small actual value and performed well under many conditions in an empirical study by Armstrong and Collopy, 1992 (Goodwin, Lawton, 1999).

$$MdAPE = Median\left[\frac{|estimated-actual|}{(estimated+actual)/2}\right] * 100\% \quad (27)$$

The criterion of MdAPE is given in the Table VI.

Table 4

The Performance of MDAPE

Performance	MdAPE (%)
Best	<10
Good	10-20
Reasonable	20-50
Inexactitude	>50

MdAPE values obtained for current study can be denoted as reasonable for both products LDI and Flash (33.33% and 33.36% respectively). The best forecasting performance is observed for product LDI's 0.25μm

(1.87%). The overall evaluation of the model outlines good fit and accurate forecasting results.

Table 5

Forecasting performance of the model

Product LDI:	
Model performance	MdAPE *(%)*
0.18 μm	16.52%
0.35 μm	32.45%
0.25 μm	1.87%
0.16 μm	9.57%
0.3 μm	2.52%
Average	12.59%

Product Flash:	
Model performance	MdAPE *(%)*
0.18 μm	10.27%
0.25 μm	7.11%
0.13 μm	9.64%
0.09 μm	15.11%
Average	10.53%

Comparison analysis was conducted between the proposed and regression models to see an example and to find out which of them best fit OM Semiconductor's historical demand data. Concepts of two models are very different: while increasing or decreasing cycles/trends are apparent in regression method in most cases (see Appendix), the proposed model tries to maximally trace actual sales data and forecast future sales using consequent from it estimated parameters. Appendix demonstrates results of the comparison analysis indicating R2 and MdAPE values for both models and proves complete advantage of proposed model over linear regression in almost all cases.

Incorporation of the capacity restriction factor to the model with current data set did not affect forecast accuracy and forecasting performance in most cases as it was expected because capacity provision in OM Semiconductor was more than sufficient for all generations of both products LDI and Flash. Fig. 6 demonstrates the usefulness of this factor within the model. It shows values of actual and estimated sales and capacity levels for product LDI's 0.18μm of over 73. It is very easy to understand that much more than required capacity was applied in the first half and there was a need to dynamically match capacity to a changing demand pattern in the further periods. In period 71, expected sales exceed capacity limit for that period which means that the model will minimize its expected sales to a maximum capacity value for that period. Further forecasting (periods 72-73) shows same results as in period 71.

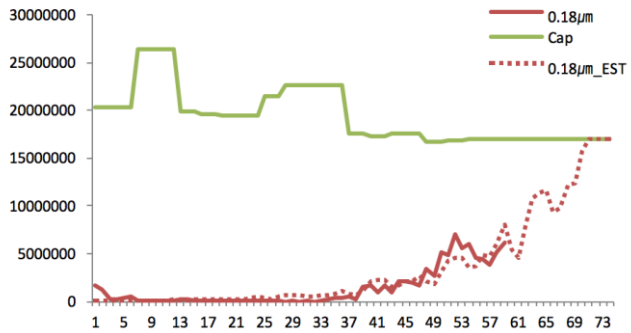
One more way to show importance of "capacity restriction" factor within this model is to create a scenario where existing data for capacity will be artificially lowered.

On the other hand, incorporation of this factor has more useful implications. This study suggests that using this model with incorporated "capacity restriction" can provide marketers more transparent updated information on the current situation of capacity utilization and assist them in better capacity planning in the future.

As it was mentioned before, these observations are relevant only for the current data set. It is expected that capacity restriction factor will have much more presence (and perform better) for other data sets such as from fashion industry or electronic industry where capacity factor plays crucial role in demand forecasting.

Figure 5

Capacity restriction factor within the model



6. CONCLUSION

The aim of this study was construction of a multi-generation technology diffusion model by taking into consideration additional factors to SMPRT model of [1] such as capacity restriction with the purpose of building more accurate forecasting model for supply chain. While all previous related models, including those of [1]-[3], are industry-oriented (i.e. which are to compute industry related parameters and forecast for industry), this study incorporates individual firm's market share information into the model to make it available to individual firms for using it in estimation of their firm-related parameters based on historical data and conduct their own forecasts.

For empirical analysis, historical sales data from OM Semiconductor Co Ltd., semiconductor device manufacturer in Korea, was mainly used. Other data such as OM Semiconductor's market share, global revenue by products, capacity information, etc. obtained from iSuppli14 database. In estimation of Bass's parameters - coefficient of innovation p, coefficient of imitation q and total market potential M, nonlinear least square (NLS) method was applied. Though we estimated M for our study, the final model uses another parameter called (individual firm's) sales potential S, using M to find its value: sales potential = total market potential*market share. For comprehensive evaluation we run the model for two different data sets. In addition, comparison analysis with traditional linear regression based forecasting model was conducted.

Our empirical findings demonstrate goodness of fit and validated practical viability of the proposed model to accurately forecast the demands. Adjusted coefficient of determination (R2) and median absolute percentage error index (MdAPE) were used as main evaluation factors by recommendations of previous literatures. MdAPE, interpreted as a measure of forecast accuracy, acquired reasonable values (between 10% and 50%) for current study.

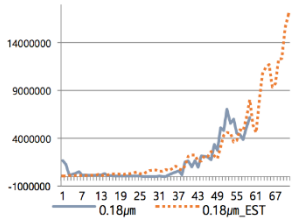
To provide valuable forecasting information for support capacity planning decisions we incorporated capacity restriction factor into the model. As it was noted before, this study suggests that using this model with incorporated "capacity restriction" can provide marketers more transparent updated information on the current situation of capacity utilization and assist them in better capacity planning in the future.

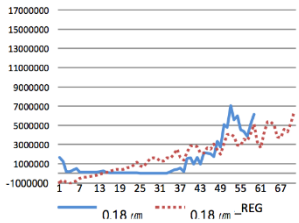
One of limitations of current study is that several parameters (particularly capacity and price) were assumed to be constant during forecasting period (periods 60-71) and equal to the correspondent values of the last period (period 59). However, in reality this assumption is not a fact – due to increase of efficiency of manufacturing systems, perfection of structure of the economy and maintenance of economic growth the probability that parameters will change over time is high.

APPENDIX - COMPARISON BETWEEN PROSED MODEL AND REGRESSION MODEL

1) Product LDI

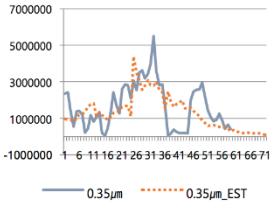
0.18 μm

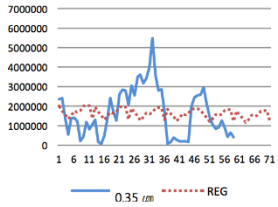




Model performance (Current)			Model performance (Regression)		
R^2	0.18μm	0.9114	R^2	0.18μm	0.7690
MdAPE	0.18μm	16.52%	MdAPE	0.18μm	255.08%

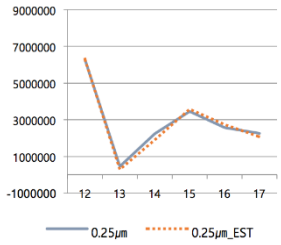
0.35 μm

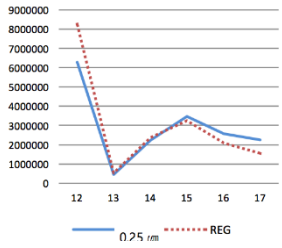




Model performance (Current)			Model performance (Regression)		
R^2		0.5348	R^2		0.1949
0.35μm		32.45%	0.35μm		47.46%
MdAPE			MdAPE		
0.35μm				0.35μm	

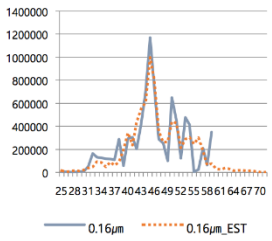
0.25 μm

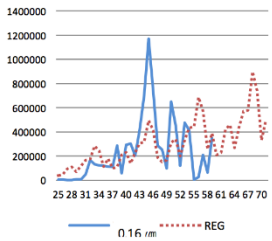




Model performance (Current)			Model performance (Regression)		
R^2		0.9961	R^2		0.9720
0.25μm		1.87%	0.25μm		18.74%
MdAPE			MdAPE		
0.25μm				0.25μm	

0.16 μm

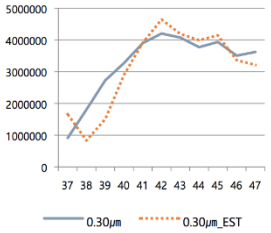


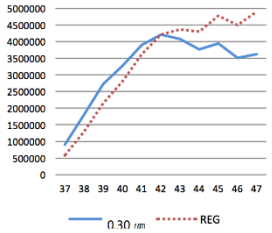


Model performance (Current)	
R^2	0.8755
0.16μm MdAPE	9.57%
0.16μm	

Model performance (Regression)	
R^2	0.4562
0.16μm MdAPE	57.73%
0.16μm	

0.3 μm



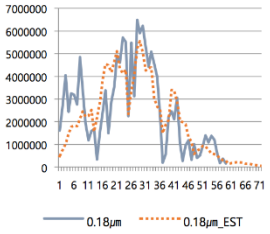


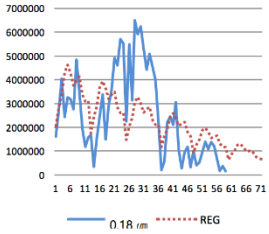
Model performance (Current)	
R^2	0.8886
0.3μm MdAPE	2.52%
0.3μm	

Model performance (Regression)	
R^2	0.9225
0.30μm MdAPE	21.12%
0.30μm	

2) Product Flash

0.18 μm

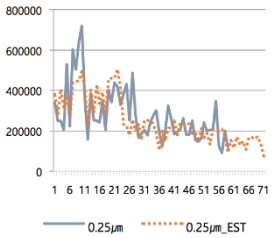


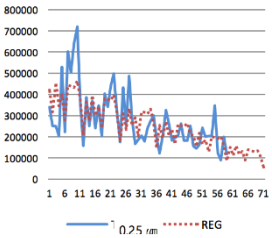


Model performance (Current)	
R^2	0.7602
0.18μm MdAPE	10.27%
0.18μm	

Model performance (Regression)	
R^2	0.5317
0.18μm MdAPE	48.78%
0.18μm	

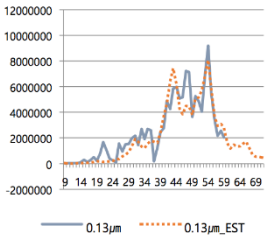
0.25 ㎛

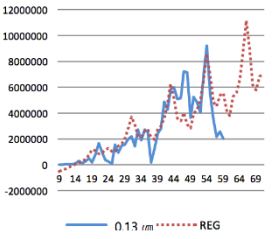




Model performance (Current)		Model performance (Regression)	
R^2	0.7025	R^2	0.7591
0.25㎛	7.11%	0.25㎛	24.16%
MdAPE		MdAPE	
0.25㎛		0.25㎛	

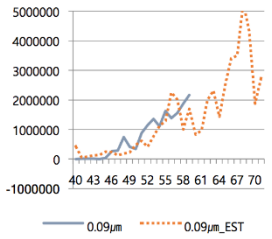
0.13 ㎛

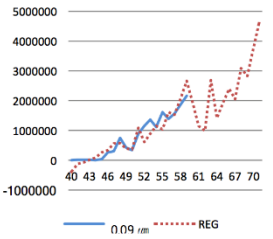




Model performance (Current)		Model performance (Regression)	
R^2	0.9230	R^2	0.7245
0.13㎛	9.64%	0.13㎛	40.16%
MdAPE		MdAPE	
0.13㎛		0.13㎛	

0.09 ㎛





Model performance (Current)		Model performance (Regression)	
R^2	0.8094	R^2	0.9305
0.09㎛	15.11%	0.09㎛	28.72%
MdAPE		MdAPE	
0.09㎛		0.09㎛	

ACKNOWLEDGMENT

This Study was supported by the Institute of Management Research at Seoul National University.

REFERENCES

[1] Chen-Fu Chien, Yun-Ju Chen & Jin-Tang Peng (2010), "Manufacturing intelligence for semiconductor demand forecast based on technology diffusion and product life cycle", International Journal of Production Economics, Vol. 128, No. 2, Pp. 496-509,

[2] Islam, T. & Meade, N. (1997), "The diffusion of successive generations of a technology: A more general model", Technological Forecasting and Social Change, Vol. 56, Pp. 49–60.

[3] Norton, J. A. & F. M. Bass (1987), "A diffusion theory model of adoption and substitution for successive generations of high technology products", Management Science, Vol. 33, Pp. 1069-86.
[4] Bass, F. M. (1969), "A new product growth model for consumer durables", Management Science, Vol. 15, Pp. 215–227.
[5] Speece, M. W. & MacLachlan, D. L. (1992), "Forecasting fluid milk package type with a multi-generation new product diffusion model", IEEE Transactions on Engineering Management, Vol. 39, Pp. 169– 175.
[6] V. Padmanabhan & Frank M. Bass (1993), "Optimal pricing of successive generations of product advances", International Journal of Research in Marketing, Vol. 10, No. 2, Pp. 185-207.
[7] Danaher, Peter J., Hardie, Bruce G. S. & Putsis, William P. Jr. (2001), "Marketing-mix variables and the diffusion of successive generations of a technological innovation", Journal of Marketing Research, Vol. 38, No. 4, Pp.501 – 514.
[8] Jun, Duk Bin & Park, Yoon S. A. (1999), "Choice-based diffusion model for multiple generations of products", Technological Forecasting & Social Change, Vol. 61, No. 1, Pp. 45-58.
[9] Mahajan & E. Muller (1996), "Timing, diffusion, and substitution of successive generations of technological innovations: the IBM mainframe case", Technological Forecasting and Social Change, Vol. 51, Pp. 109-132.
[10] S. D. Wu & K. Kempt (2009), "Extending Bass for improved new product forecasting in Intel", Wagner Prize for Excellence in OR Paper.
[11] M. C. Futrell (2003), Forecast Solutions (http://www.forecastsolutions.co.uk) .
[12] William C. Johnson & Keith Bhatia (1997), "Technological substitution in mobile communications", Journal of Business & Industrial Marketing, Vol.12, No. 6, Pp. 383-399.

FRAMING AND COMPARISON JUDGMENTS IN POLITICAL MARKETING STRATEGIES

Magdalena Jabłońska* & Andrzej Falkowski**

**Magdalena Jabłońska, MA, Institute of Psychology, SWPS University of Social Sciences and Humanities, Warsaw, Poland, E-Mail: mjablonska2@swps.edu.pl*

*** Andrzej Falkowski, PhD, Institute of Psychology, SWPS University of Social Sciences and Humanities, Warsaw, Poland, E-Mail: afalkow2@swps.edu.pl*

ABSTRACT

Abstract – Positive-negative asymmetry and the resulting negativity effect, consisting in a greater impact of negative stimuli on behaviour and attitude formation in comparison to positive stimuli of similar value, are the focal points of the research. Our paper is theoretically grounded in the literature on the negativity effect and Tversky's contrast model of similarity. Particularly, we focus on the influence of framing and similarity and dissimilarity judgements on the perception of a political candidate. Although it runs against conventional wisdom, there is much empirical evidence showing that similarity judgments and dissimilarity judgements are not inverses of one another. In our study we want empirically test 1) the effect of positive and negative features on the perception of a political candidate and 2) how similarity to a good politician and dissimilarity from a negative politician are related to the affective evaluation of the candidate and willingness to vote for him. Our findings do not support the negativity effect but point to interesting differences in the relationship between similarity and dissimilarity judgements, affective evaluation and behavioural intention.

Keywords – Contrast Model Of Similarity, Framing, Negativity Effect, Similarity Judgements

INTODUCTION

The following paper will concentrate on two phenomena, the positive-negative asymmetry as well as framing which can be characterized as a particular way of presenting information so that it influences one's opinions about the matter presented. More specifically, we will elaborate on one type of framing, so called valence framing, which assumes that being an opposer of a certain ideology or concept leads to stronger reactions than being a supporter of the preferred option. Valence framing will be interpreted with reference to the negativity effect, that is a stronger effect of unpleasant stimuli over the pleasant ones of comparable value. Research on the evaluation of political candidates shows that negative features have a stronger effect on image formation than positive ones of the same absolute value. This and similar findings explain big popularity of negative comparative advertising which goal is to discredit an opponent in political elections(Ahluwalia, 2002*)*. However, its effectiveness is often called into question. In the study, we will investigate how the similarity to an ideal politician and dissimilarity from the bad politician will affect the perception of a political candidate. The results will be interpreted with reference to the negative-positive asymmetry and contrast model of similarity (Tversky, 1977), a well-known psychological theory explaining how people compare and judge the similarity and difference of evaluated stimuli.

LITERATURE AND THEORY

1.1. Priming and Framing in Political Communication

Framing can be defined as a mental construction of a representation of an object or event on the basis of memory schemata and previous experience *(*Cwalina, Falkowski & Newman, 2015*)*. Because of its persuasive character, framing has been a subject of numerous studies in psychology *(*Tversky and Kahneman 1985*)*, media communication *(*Entman 2007*)* and political marketing *(*Cwalina, Falkowski and Newman

2015). The mechanism of framing relies on priming which affects the accessibility of a certain concept in the voter's mind (Iyengar 1991).

In political setting, various types of priming such as agenda setting (Jones and Baumgartner 2004), media priming (Van der Brug, Semetko and Valkenburg, 2007) and candidate priming (Druckman, Jacobs and Ostermeier 2004) have been discussed. Although they differ as far as the source of the message is concerned, they share one important feature, that is their main goal is to shape the content of news, political discourse and thus voters' opinions in such a way that it is serves political purposes. The first role of media and other communicators in the communication process is to select the topics for discussion. Taking the example of 2016 presidential elections in the United States, it may be argued that one of the main focuses of the political debate was illegal immigration and the experience (or the lack of thereof) that the political candidates had. Furthermore, Donald Trump repeatedly made references to Clinton's involvement in numerous scandals, whereas the former Secretary of State reiterated on Trump's intolerance and his general inadequacy for the post of the President of the United States.

After setting main topics that media present and voters think and talk about (the "what"), the second step is to shape the way in which a certain issue has been perceived (the "how"). This is the main role of framing. As Entman (1993) notes "to frame is *to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation* for the item described." (p. 52; italics in original). Again, using the example of the 2016 presidential elections, it is visible that although the two candidates talked about the same issues (such as immigration and American values), Donald Trump concentrated on the threat that illegal immigrants posed to the traditional American values and their negative influence on the economy, whereas Hillary Clinton used an example of Humayun Khan, a Muslim soldier of Pakistani origin who died in Iraq fighting for the same American values.

Another type of framing that may be adopted in political communication is the way people think about themselves with regard to problems that are being discussed. Taking the example of abortion, those who are against it tend to define themselves as "pro-life" activists, whereas those who are in favour of it will not think about themselves as "anti-life" but rather as the advocates of "pro-choice" movement. In the similar vein, it is important whether taking a stance about a certain issue, a person thinks about themselves as a supporter of this concept or rather an antagonist of the alternative. This problem is known as valence framing as has been a subject of many empirical studies in the field of political psychology.

1.2. Valence framing

Yet again referring to the presidential elections, the same voter can perceive themselves as the supporter of Donald Trump or as the opposer of Hillary Clinton. As findings on negative valence framing show these perspectives are not identical and lead to significant differences in the evaluation of candidates and willingness to vote for them. In series of experiments, Bizer and his colleagues (Bizer and Petty, 2005; Bizer, Larsen and Petty, 2011; Bizer, Žeželj and Luguri, 2013) showed that negatively framed participants (that is those who thought about themselves as the opponents) were more resistant to change their opinion about their candidate after reading an unfavourable message about him than did the positively framed participants. Further research went beyond resistance to persuasion and showed that negatively framed voters were also more likely to vote for their candidate and volunteer on his behalf (Bizer, Larsen and Petty, 2011).

So far, various types of framing and its influence on the perception of political candidates have been discussed. In our studies (Jabłońska and Falkowski, in review), we have proposed a yet again type of framing. Namely, we have posited that the evaluation of a political candidate would depend not only on the features that he or she had but also on the characteristics of the alternative. We predicted that if the candidate was compared against his "bad version" (negative framing), his affective evaluation would be higher than if he was juxtaposed with an ideal political candidate (positive framing). An experimental study that we conducted confirmed our assumptions. Additionally, we tested the effect of positive and negative framing on the willingness to vote for the candidate. Again, our analyses revealed that the comparisons to the bad politician resulted in higher intention to vote for the candidate than the juxtaposition to the ideal politician. Finally, it was observed that framing the participants with the concept of "bad politician" was strong enough to change the initial opinion about the candidate. Namely, the affective evaluation of the candidate significantly rose

after the voters were framed with the concept of the bad politician (compared to the initial measurement). No such effect for positive framing was observed.

1.3. Positive negative asymmetry

The results of studies on framing can be interpreted with reference to research on positive-negative asymmetry which is one of the most investigated and discussed issues in the literature on social, political and economic behavior (Baumeister, Bratslavsky, Finkenauer, Vohs, 2011; Peeters & Czapinski, 1990). Although in some circumstances, people tend to show stronger preference for positive information over negative information, especially with regard to personal memories in older age (Carstensen, 2009, Reed & Carstensen, 2012), the majority of studies points to the so called negativity effect. Everyday observations as well as numerous experimental studies have shown the greater power of negative emotions and stimuli as well as bad events, memories, or feedback over the good ones (Baumeister, Bratslavsky, Finkenauer, Vohs, 2011, Gilbert, Pinel, Wilson, Blumberg and Wheatley, 1998). In economy, the studies by Kahneman and Tversky (1979, 1984) on the differences in the perception of profits and losses led to the development of prospect theory which holds that possible losses have a bigger impact on decision-making than objectively equal gains. Similar effects in media research and political communication have been found, making the negativity effect one of the most prevalent beliefs in marketing, which is visible in the use of negative advertising (Ahluwalia, 2002).

1.4. Rationale for the study and Contrast Model of Similarity

Although research on framing in political context is extensive, so far there have not been many studies that would look on how comparisons to positive and negative points of reference affect the evaluation of political candidates. In this study, we would like to continue our previous studies on the effect of positive and negative framing on affect and preference formation (Jabłońska and Falkowski, in review). This time, however, we want to investigate how similarity and dissimilarity judgements influence the perception of political candidates. Although it runs against conventional wisdom, there is much empirical evidence showing that similarity judgments and dissimilarity judgements are not inverses of one another. For instance, Medin, Goldstone and Gentner (1990) showed that when asked to compare two objects against the standard, participants tended to choose the same objects as both most similar to and most different from the standard. Such and similar findings are in line with Tversky's (1977) contrast model of similarity that explains the non-complementarity of similarity and dissimilarity judgements.

According to the model, all objects can be represented as sets of features which determine how alike two objects are. The similarity between the sets, however, is not a fixed characteristic but is based on the on-going process of comparing and adjusting features between given sets of attributes. The objects that are being compared have some aspects that they both share (common features) and the others that set them apart (distinctive features) (see Figure 1). Similarity is defined then as a feature-matching process. Two sets are the more similar, the more common features they share and / or the less distinctive features they have. Hence, greater resemblance between the sets can be achieved twofold: by increasing common features or decreasing distinctive features. Contrary to geometric representation of similarity, the contrast model assumes that similarity is neither stable nor symmetrical in nature. Instead it is malleable and depends on the context and the characteristics of objects.

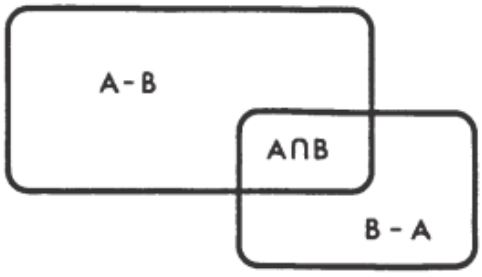


Figure 1. A graphical illustration of the relation between two feature sets. Source: Tversky, 1977, p. 330.

In now a classic experiment in the field, Tversky (1977) showed that when asked to evaluate the similarity of various types pairs (such as for instance North Korea and Red China), the participants judged the similarity of North Korea to Red China as greater than the judged similarity of Red China to North Korea. Such a result clearly violates geometric models of similarity that assume that assume that the distance between two object remains constant (Shepard 1980).

1.5. Hypotheses

Based on our previous studies and the contrast model of similarity, we predict that similarity and dissimilarity judgements will have a different effect on the perception of the political candidate. Furthermore, taking into consideration the negativity effect we assume that comparisons to the bad politician (negative framing) will have a stronger effect than the comparisons to the ideal politician. Furthermore, we want to investigate whether comparisons judgments will have the same effect on the affective evaluation of the candidate as on the willingness to vote for him.

Hence, in our study we want to test the following hypotheses:

Hypothesis 1: Negative features in the description of a political candidate will have a stronger effect than positive features on:

a) similarity to the ideal politician
b) dissimilarity from the bad politician
c) the affective evaluation of the candidate
d) voting intention.

Hypothesis 2: Dissimilarity from a bad politician will have a stronger effect on the affective evaluation of a candidate than the similarity to an ideal politician.

Hypothesis 3: Dissimilarity from a bad politician will have a stronger effect on the voting intention than the similarity to an ideal politician.

METHODOLOGY

The experiment constituted a part of a larger research project. Below we present information that are relevant to our study, omitting other variables not used in the analysis. Participants were 35 students (N = 29 women) from psychology department of a major Polish university. Gender, age, level of education, political beliefs (from 0 "extreme left" to 10 "extreme right") and political engagement (from 0 "not at all interested in politics" to 10 "extremely interested in politics") were controlled. Respondents were informed that they would take part in a study on the evaluation of various political candidates. Researchers stressed that the results would be anonymous and that they were interested in respondents' true opinions about the candidates. Later respondents were presented with various descriptions of political candidates (only one used in the analysis). After respondents read the description of the candidate, they were asked to evaluate on a 11-point Likert scale the extent to which the analyzed politician is similar to an ideal political candidate (0 – "very dissimilar" to 10 – "very similar"), how dissimilar he is from the bad politician (0 – "not dissimilar at all" to 10 – "very dissimilar"), how much they liked him (0 "I dislike the politician a lot" to 10 – "I like the politician a lot") and whether they would vote for him if he ran in elections (0 – "I would definitely not vote for the politician" to 10 "I would definitely vote for the politician").

In order to reliably measure the influence of positive and negative features on similarity judgements, affective evaluation and choice, we precisely controlled the traits that were used in the descriptions of political candidates. The MOCOM (Measure Of Consumption Object Meaning; Kleine and Kernan, 1988) method was adopted in order to determine which characteristics were most characteristic as positive and negative features of a political candidate. The method was described in detail in Jabłońska and Falkowski (in review) and used effectively in studies (*ibidem*). The characteristics were later used to create a description of a political candidate in which positive and negative traits were balanced not only with reference to the number of features used (five positive and five negative) but also their "value". The importance of each feature was calculated

based on free associations obtained from ninety six other respondents in an earlier study (Jabłońska and Falkowski, in review) and their dominance scores (Kleine and Kernan, 1988; Szalay and Deese, 1978). The sum of dominance scores for all free associations was calculated leading to the set of features typical for an ideal political candidate and a bad politician.

From the set, we selected features which sum of values for positive and negative traits was identical. With such objective and controlled values of positive and negative traits, we could predict that the possible differences in comparison judgements, affective evaluation and voting intention was due to the hypothesized negativity effect and not a result of particular traits used in the description of a political candidate.

RESULTS

3.1. Negativity effect in the effect of positive and negative features

A series of t-tests for one sample was conducted to test the difference in the effect of positive and negative features of the same absolute value on dependent variables. In each of the models, the median value of the scale (Me = 5) was set as the test value. In the first model, the similarity to the ideal politician was the dependent variable. We wanted to test whether the candidate was evaluated as less similar to the ideal politician than the test value would suggest. If the result was significant, it would suggest a stronger effect of negative features over the positive ones. However, the model turned out to be insignificant, $t(34) = .00$, $p = 1.00$, hence rejecting Hypothesis 1a. In the second model, dissimilarity from the bad politician was the dependent variable. If the negativity effect was present, we would predict a value smaller than the test value. Again, however, the result was insignificant, $t(34) = 0.135$, $p = .894$. In the third stage, the affective evaluation of the candidate was the dependent variable. Similarly to previous analyses, t-test was insignificant, $t(34) = -1.284$, $p = .208$, thus rejecting Hypothesis 1c. Finally, we tested whether negative and positive features of the same absolute value differed in the effect on willingness to vote for the candidate. Yet again, the analysis turned out to be insignificant, $t(34) = -1.030$, $p = .310$. Overall, all hypotheses were rejected showing that the positive and negative features used in the descriptions of the candidates had a similar effect on the perception of the political candidate.

Table 1: Means and standard deviations for tested variables

	M	SD
Similarity Ideal Politician	5.00	2.326
Dissimilarity from a Bad Politician	5.06	2.508
Affective Evaluation	4.46	2.501
Voting Intention	4.51	2.790

3.2. Effect of Comparison Judgments on Affective Evaluation

In order to test Hypothesis 2, we conducted a multiple linear regression analysis, with the affective evaluation of the political candidate as the dependent variable and similarity to the ideal politician and dissimilarity from the bad politician as predictors. Both predictors were entered simultaneously into the regression equation. The model was significant, $F(2, 32) = 39.917$, $p < .001$. The results showed that both variables were good predictors of the affective evaluation of the candidate (Similarity to the ideal politician, $\beta = .464$, $t = 3.347$, $p = .002$; Dissimilarity from the bad politician, $\beta = .444$, $t = 3.208$, $p = .003$) and together they explained 70% of the variance ($R^2 = .696$). However, contrary to our expectations, the comparison of the size of standardized regression coefficients revealed that both factors to the same extent predicted the dependent variable. Thus, Hypothesis 2 about the stronger effect of the dissimilarity from the bad politician was not confirmed.

3.3. Effect of Comparison Judgements on Voting Intention

In order to test Hypothesis 3, a multiple linear regression model was conducted. The similarity to the ideal politician and the dissimilarity from the bad politician were tested as predictors of the intention to vote for the candidate. Again, the analysis was significant, $F(2, 32) = 58.521$, $p < .001$, with both variables being significant predictors of the outcome variable (Similarity to the ideal politician, $\beta = .612$, $t = 5.100$, $p < .001$; Dissimilarity from the bad politician, $\beta = .334$, $t = 2.784$, $p = .009$). Together, they explained 77.2% of

variance. The comparison of the standardized regression coefficients revealed that whereas the effect of the similarity to the ideal politician was strong, the effect of the dissimilarity judgement was only medium according to Cohen's (1992) recommendations. Hence, yet again Hypothesis 3 about the stronger effect of the dissimilarity from the bad politician judgement was rejected.

CONCLUSION AND FUTURE WORK

The aim of the study was to investigate the negativity effect in the evaluation of political candidates. We hypothesized that negative features of a candidate would have a stronger influence on his evaluation than positive features of a comparable value. In order to test our assumptions we conducted a series of analyses which showed no such an effect. First, we predicted that if negative features were indeed stronger, they would lower (compared to positive features of the same absolute value) the affective evaluation of the candidate and intention to vote for him, reduce his similarity to the ideal politician as well reduce his dissimilarity from the bad politician. However, no such effect was observed. All variables did not differ statistically from the median which was predicted as the score if positive and negative features had a comparable effect.

Furthermore, in two regression models we tested whether the dissimilarity from the bad politician was a better predictor of the affective evaluation and voting intention than the similarity to the ideal politician. Had it been the case, it would point to the presence of the negativity effect. However, no such an effect was found. The first analysis showed that both variables were comparable in their prediction of a candidate's affective evaluation. In the second analysis, the effect opposite to the expected was observed. Namely, the similarity to the ideal politician turned out to be a better predictor of voting intention than the dissimilarity from the bad politician.

Although empirical evidence did not support our assumptions, the study still brings interesting observations about two effects, namely the negativity effect and the effect of comparison judgements on a candidate's affective evaluation and voting intention. As far as the negativity effect is concerned, the results may be interpreted with regard to the positivity effect. Although less reported, the effect has been observed, especially with regard to evaluations of people. For instance, in their study, Menon and Johar (1997) demonstrated that when asked to recall personal experiences, respondents displayed a significant positivity effect (that is they recalled more positive experiences than negative ones). Interestingly, the effect was restricted to recollections of memories of other people and was absent in non-social context which fits our study on the evaluation of political candidates.

As far as comparison judgements are concerned, in line with findings on non-complementarity of similarity and dissimilarity judgements (Medin, Goldstone and Gentner 1990, Tversky 1977), we showed that the two are not inverses of one another and that they differ in their predictive power of affective evaluation and voting intention. The discrepancy between a candidate's affective evaluation and the willingness to vote for him may be interpreted with reference to extensive body of research on the relationship between attitude and behaviour (Ajzen and Fishbein 1977, 2005, Eagly and Chaiken 1993). Although the two concepts are strongly correlated and attitude has been shown to be a good predictor of behaviour (Glasman and Albarracín 2006, Kraus 1995), contradictory findings have been also found (Albrecht and Carpenter 1976). In our study, we demonstrated that although the two concepts are related, they are explained by other factors. In future studies, more complex models testing the relationship between all four variables simultaneously should be investigated.

ACKNOWLEDGEMENTS

Publication co-financed by the Polish Ministry of Science and Higher Education core founding for statutory SWPS University of Social Sciences and Humanities, Faculty of Psychology, 251516/E-560/M/2016.

REFERENCES

Tversky, Amos, and Daniel Kahneman (1985). "The framing of decisions and the psychology of choice." *Environmental Impact Assessment, Technology Assessment, and Risk Analysis*. Springer Berlin Heidelberg, pp. 107-129.

Entman, Robert M. (2007). "Framing Bias : Media in the Distribution of Power" 57: 163–73.

Cwalina, Wojciech, Andrzej Falkowski, and Bruce I Newman (2015). "Persuasion in the Political

Context : Opportunities and Threats." In *The Handbook of Persuasion and Social Marketing*, edited by David W. Stewart. Santa Barbara, CA: Praeger, pp. 61–128.

Iyengar, Shanto (1991). *Is Anyone Responsible?: How Television Frames Political Issues*. Chicago: University of Chicago Press.

Jones, Bryan D. and Frank R. Baumgartner (2004). "Representation and agenda setting." *Policy Studies Journal 32* (1), 1-24.

Van der Brug, Wouter, Holli A. Semetko, and Patti M. Valkenburg (2007). "Media priming in a multi-party context: A controlled naturalistic study in political communication." *Political Behavior* 29,1 115-141.

Druckman, James N., Lawrence R. Jacobs, and Eric Ostermeier (2004). "Candidate strategies to prime issues and image." *Journal of Politics 66 (4)*, 1180-1202.

Entman, Robert M. (1993). "Framing: Toward clarification of a fractured paradigm." *Journal of communication 43(1)*, 51-58.

Jabłońska, Magdalena and Andrzej Falkowski. „Framing in Political Evaluations. An Empirical Study on the Role of Positive and Negative Comparisons in Affect and Preference Construction." Journal of Political Marketing. In review.

Carstensen, Laura L. (2006). "The influence of a sense of time on human development." *Science 312*(5782), 1913-1915.

Reed, Andrew E., and Carstensen, Laura L. (2012). "The theory behind the age-related positivity effect". *Frontiers In Psychology, 3* doi:10.3389/fpsyg.2012.00339.

Gilbert, Daniel T., et al. (1998). "Immune neglect: a source of durability bias in affective forecasting." *Journal of personality and social psychology 75*(3), 617-638.

Ahluwalia, Rohini (2002). "How Prevalent Is the Negativity Effect in Consumer Environments?" *Journal of Consumer Research 29* (2): 270–279.

Medin, Douglas L., Robert L. Goldstone, and Dedre Gentner (1990). "Similarity involving attributes and relations: Judgments of similarity and difference are not inverses." *Psychological Science 1*(1), 64-69.

Shepard, Roger N. (1980). "Multidimensional scaling, tree-fitting, and clustering." *Science 210*(4468), 390-398.

Kleine, Robert E., and Jerome B. Kernan (1988). "Measuring the meaning of consumption objects: An empirical investigation."*Advances in Consumer Research Volume 15*(1), 498-504.

Szalay, Lorand B., and James Deese (1978). "Subjective meaning and culture: An assessment through word associations". Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, Jacob (1992). "A power primer." *Psychological bulletin 112*(1),155-159.

Menon, Geeta, and Gita Venkataramani Johar (1997). "Antecedents of positivity effects in social versus nonsocial judgments." *Journal of Consumer Psychology 6*(4), 313-337.

Ajzen, Icek, and Martin Fishbein (1977). "Attitude-behavior relations: A theoretical analysis and review of empirical research." *Psychological bulletin 84*(5), 888-918.

Ajzen, Icek, and Martin Fishbein (2005). "The Influence of Attitudes on Behavior." In Dolores Albarracín, T. Johnson Blair, and Mark P. Zanna (Eds.) *Handbook of Attitudes*. Mahwah, NJ: Erlbaum,pp. 173–221.

Eagly, Alice H., and Shelly Chaiken (1993). *The Psychology of Attitudes.* Orlando, FL: Harcourt Brace Jovanovich College Publishers.

Glasman, Laura R., and Dolores Albarracín (2006). "Forming attitudes that predict future behavior: a meta-analysis of the attitude-behavior relation." *Psychological bulletin 132* (5), 778-822.

Kraus, Stephen J. (1995). "Attitudes and the prediction of behavior: A meta-analysis of the empirical literature." *Personality and social psychology bulletin 21*(1), 58-75.

Albrecht, Stan L., and Kerry E. Carpenter (1976). "Attitudes as predictors of behavior versus behavior intentions: A convergence of research traditions." *Sociometry 39*(1),1-10.

Baumeister, Roy F, Ellen Bratslavsky, Catrin Finkenauer, and Kathleen D Vohs (2001). "Bad Is Stronger than Good." *Review of General Psychology 5* (4): 323–70.

Bizer, George Y., Jeff T. Larsen, and Richard E. Petty (2011). "Exploring the Valence-framing Effect: Negative Framing Enhances Attitude Strength." *Political Psychology 32*(1): 59–80.

Bizer, George Y., and Richard E. Petty (2005). "How We Conceptualize Our Attitudes Matters: The Effects of Valence Framing on the Resistance of Political Attitudes." *Political Psychology 26*(4): 553–68.

Bizer, George Y., Iris L. Žeželj, and Jamie B. Luguri (2013). "When Are Support and Opposition Not Opposites? Depth of Processing as a Moderator of the Valence-Framing Effect." *British Journal of Social Psychology 52*(1): 191–201.

Kahneman, Daniel, and Amos Tversky.(1979). "Prospect theory: An analysis of decision under risk." *Econometrica: Journal of the econometric society 47(3)*, 263-291.

Kahneman, Daniel, and Amos Tversky (1984). "Choices, values, and frames." *American psychologist 39* (4), 341-350.

THE EVALUATION OF THE EUROPEAN CITIZENSHIP WITHIN THE EUROPEAN UNION TREATIES

Mehlika Özlem Ultan*

**Mehlika Özlem Ultan, Ph.D., Kocaeli University, Kocaeli/Turkey*

E-Mail: ozlemultan@gmail.com

ABSTRACT

Citizenship is both a legal institution and a social practice. It is related to protection of rights and being a part of a community. The European Union has its own system of citizenship which can be traced back to 1970's. The citizenship term was firstly mentioned in Tindemans Report and was legally underlined in 1992 Maastricht Treaty. Through the European Union treaties, the characteristics of the term have changed. In this study, firstly the difference between the European Citizenship and the Citizenship will be explained. Then, the evaluation of the European Citizenship term within the context of the European treaties will be analyzed. The most important aim of this study is to show evaluation of the term through the historical and legal point of views. Thus, the Tindemans Report and the treaties such as Maastricht Treaty, Amsterdam Treaty, Nice Treaty, Constitutional Treaty, and Lisbon Treaty will be investigated and the development of the term will be analyzed.

Keywords – Citizenship, European Citizenship, European Union Treaties

I. The Citizenship and the European Citizenship as a Term

First of all, it is necessary to understand what the concept of citizenship is. It can be defined as a way of inclusion that gives the same basic entitlements to people who are different in age, gender, beliefs or color. (García and Tegelaars, 2003, p.19) Citizenship can be accepted as the status of a citizen while being a member of a community. It can be described by legal rules and norms that determine certain rights and obligations. According to Wiener, the historical elements of citizenship are rights, access and belonging. (Wiener, 1997, p.531) When people have a common experience of rights, duties and entitlements, they also share a common history and culture. (García and Tegelaars, 2003, p.19) Thus, identity and rights can be described as the crucial elements of citizenship. These are also related to both the personal scope and the material scope. While the personal scope is associated with identity and culture; the material scope is identified with the statue of rights. So citizenship can be defined as a reflection of an identity of existing communities. (Montero, 2001, p.365) The rights of citizens are civil, political and social. All of them are related to welfare state. Public education, unemployment insurance, poverty and old-age pensions are the components of the welfare state and these rights. When all of these rights are guaranteed, a welfare state can ensure that all citizens can feel like a member of a community. (Lehning, 2001, p.241-243)

After a brief explanation of citizenship as a term, there is a need of information about the notion of the European citizenship. The relation between identity and rights can also be seen in the European citizenship case. They are all related to equality, justice, difference and multiculturalism. (Montero, 2001, p.365) The term European citizenship can be defined as a conception of individuals which are the citizens of the European Union member states. As it is seen, the European citizenship is generally accomplished within the European Union. (Lehning, 2001, p.239-240)

As it is explained, the elements of citizenship are different rights, terms of access to participation and identities. In the European Union citizenship practice, these are all related to European citizens. (Wiener, 2003, p.397) The European Union citizenship has an important effect on the creation of European identity and on the support for the European integration process. There are two approaches to the analysis of

European citizenship. The former is minimalist approach which is related to the legal rules fixing the citizens' rights. The latter is dynamic approach which focuses on not only the constitutive nature of the citizens' rights but also the socio-culturally constructed meaning of citizenship. (Tatransky, 2006, p.490-491)

II. The European Union Treaties and the European Citizenship

In this section, the evaluation of the European citizenship will be analyzed within the European treaties.

2.1. Before the Maastricht Treaty

Although the European citizenship was legally created by the Maastricht Treaty and consolidated through some secondary legislations and case laws, (Montero, 2001, p.364) it was not the first treaty which mentioned about citizenship. The European Coal and Steel Community Treaty (ECSC) which was signed in Paris 1951 was the founder treaty of the Community. By signing this treaty, six countries sought to create a single market in the coal and steel sectors. When the articles of the ECSC were investigated, it can be seen that there were some indicators of embryonic citizenship. (Olsen, 2008, p.44)

In 1957, the Treaty of Rome established the European Economic Community (EEC), so the scope of European integration was broadened. One of the main aims of the Community was the establishment of a common market in Europe. The meaning of citizenship began to change through fundamental market citizenship from embryonic citizenship. (Olsen, 2008, p.45)

In the 1970's, the change of the first political paradigm of European citizenship can be observed. At Paris Summit in 1972, the necessity of creating a common European identity and citizenship was underlined. At Copenhagen Summit in 1973, the Europeanness notion was described. At Paris Summit in 1974, the objectives of European citizenship were introduced. Thus, the relation between the citizenship and identity was recognized. All of these summits emphasized the citizens Europe concept and constituted the basis of creation of the European citizenship. (Tatransky, 2006, p.492-493)

Since 1975, the concept of European citizenship has become a legal reality with the Tindemans Report. This report has underlined that there should be a notion of European citizenship in order to promote the political integration. If every European citizen can travel freely between member states, the political integration will be easier. (Evans, 1982, p.506) The free movement right of the citizens within the territory of the European Union was already arranged in the Treaty of Rome. This freedom was only established for the workers, not for all the citizens. (Tatransky, 2006, p.492) With the Tindemans Report the evolution of citizen has changed from the market citizen to the political citizen. (García and Tegelaars, 2003, p.17)

2.2. Maastricht Treaty

Who the citizens of Europe are, what is the European Union vision of good society and what level of competence can or should be expected of the European citizens are the main questions that the answers can be found in the articles of the treaties. (Gagnon-Messier, 2003, p.25) The concept of the European citizenship was considered by the Community Treaties, but it was first legally underlined in the Treaty on European Union, which signed at Maastricht on 7 February 1992 and entered into force in 1993. (Jacobs, 2007, p.591) Until 1991, there were many judicial cases from which citizens had been granted many rights. And the Maastricht Treaty was accepted as the legal inclusion of European citizenship to the treaty. (Magnette, 1998, p.62)

The Maastricht Treaty inserted the term of 'Citizenship of the Union' as a new part in the European Community Treaty. This part included six articles, which numbered 8 to 8e. The first article, which was mentioned about the citizenship, was Article 8 of the Maastricht Treaty. It provided as follows:

"Article 8: (1) Citizenship of the Union is hereby established. Every person holding the nationality of a Member State shall be a citizen of the Union.

(2) Citizens of the Union shall enjoy the rights conferred by this Treaty and shall be subject to the duties imposed thereby."

The other parts of the article were defined the rights of the citizens of the Union. Article 8a indicated the right to move and reside freely within the territory of a member state. Article 8b was related to the right to vote and to stand as candidate at municipal elections in the member states and at elections to the European Parliament. Article 8c showed that every citizen of the Union has the right to protection by the diplomatic or consular authorities of another member country, in the territory of any third country in which their Member State is not represented. Article 8d indicated that every citizen has the right to petition the European Parliament and the right to apply to the Ombudsman. (Maastricht Treaty, Article 8)

As it is understood from the Maastricht Treaty, the Article 8 linked the fundamental rights of a person with citizenship of the Union. Thus, a citizen of the Union had the fundamental rights: the free movement of goods, persons, services and capital. The other provisions, which were indicated, were the basic and core provisions the citizen of the Union. And they could only be exercised by the European citizens rather than the third country nationals. (Hansen, 1998, p.752-753)

Although the Maastricht Treaty was the first treaty which regulated the citizenship of the Union, there were some disappointments about the citizenship provisions. The most important of them was the situation of third country nationals which were permanently the residents of the European Union. (Shore, 2004, p.30) They did not have the right to work in a European Union country except they reside and the rights of political citizenship in their country of residence such as to vote and to work in the public service. (Hansen, 1998, p.751-752)

As a summary; the criticism on the citizenship provisions of the Maastricht Treaty could be classified under three titles. First, the European citizenship could be accepted as a sub-set of a member state citizenship. Second, the rights of citizens which introduced by the Treaty of Maastricht was limited to codifying the existing rights for nationals of the member states. It was seen only a legal form of the citizens' rights. (Shaw, 1998, p.2550) And finally, the European citizenship provisions did not include the situation of the third country residents in the European Union. (Hansen, 1998, p.753)

2.3. Amsterdam Treaty

The article 8 of the Maastricht Treaty was re-numbered as 17–22 in the Amsterdam Treaty which was signed on 2 October 1997.

European Union citizens are persons who have the nationality of the Member States. (Shaw, 1998, p.2550) And the difference between the European Union citizenship and the national citizenship has become an important issue. (García and Tegelaars, 2003, p.16) In order to prevent the misunderstandings, (Jacobs, 2007, p.592) the Amsterdam Treaty (Article 17) added this paragraph at the end of the first article of the Maastricht Treaty: *"Citizenship of the Union shall complement and not replace national citizenship."* (Bellamy and Warleigh, 1998, p.456) Only the European Union nationals can become European citizens and it can be said that European citizenship has complemented the national citizenship rights. (García and Tegelaars, 2003, p.17)

At the end of the article 8d of the Maastricht Treaty (Article 21 of the Amsterdam Treaty), a paragraph was added: *"Every Citizen of the Union may write to the institutions or bodies referred to in this Article or in Article 4 in one of the languages mentioned in Article 248(1) and have an answer in the same language."* (Amsterdam Treaty, p.27) With this addition, the right to use any recognized Community language (at that time 12 languages) and to have an answer in the same language were accepted. (Jacobs, 2007, p.592) The institutions which mentioned in this paragraph are the European Parliament, the Council, the

Commission, the Court of Justice, the Court of Auditors, the Economic and Social Committee, the Committee of Regions and the Ombudsman. The Amsterdam Treaty has also formally empowered the European Court of Justice to ensure the respect of fundamental rights and freedoms by these European Institutions. (García and Tegelaars, 2003, p.17)

The Amsterdam Treaty has a little changed the citizenship notion which was accepted in the Maastricht Treaty. (Jacobs, 2007, p.592) The ambiguity of the long-term resident of third country nationals about having the same rights as European citizens has still continued. (Kostakopoulou, 1998, p.640) This means that approximately 15 million residents in the territories of the member states were accepted as denizens. (García and Tegelaars, 2003, p.17)

2.4. Nice Treaty and Constitutional Treaty

The attempt to create a constitution for the European Union began with the Declaration on the Future of the Union appended to the Treaty of Nice which entered into force in December 2000. The aim of this treaty was to solve the problems about the future challenges facing an enlarging European Union. There were not any changes related to the European citizenship notion in the treaty. After the work of the Convention on the Future of the Union, the Treaty Establishing a Constitution for the European Union (Constitutional Treaty) was introduced in October 2004. However, the Constitutional Treaty was rejected in the referendums which were held in France and the Netherlands in 2005. (Shaw, 1998, p.2554)

The articles of the Constitutional Treaty which were related to the European citizenship were nearly the same as the Lisbon Treaty. The Lisbon Treaty and the European Union Charter of Fundamental Rights reinforced European Union citizens' rights.

2.5. Lisbon Treaty

The Lisbon Treaty has been constituted of two parts. The first part of the Lisbon Treaty is "The Treaty on European Union" (TEU) and the second part is "The Treaty on the Functioning of the European Union" (TFEU). The Treaty on European Union has underlined the basic rules and the procedures of the European Union. When the articles which mention about the European citizens in the TEU are investigated, it can be seen some general statements. For example, the second and fifth paragraphs of the 'article 3' are related to the commitments which the EU will provide for its citizens: "*2. The Union shall offer its citizens an area of freedom, security and justice without internal frontiers, in which the free movement of persons is ensured in conjunction with appropriate measures with respect to external border controls, asylum, immigration and the prevention and combating of crime.*" and "*5. In its relations with the wider world, the Union shall uphold and promote its values and interests and contribute to the protection of its citizens.*" (Lisbon Treaty, p.21).

The second title of the TEU has included the provisions on democratic principles. The 'article 9' of the TEU is still related to the provisions of the EU for its citizens: "*In all its activities, the Union shall observe the principle of the equality of its citizens, who shall receive equal attention from its institutions, bodies, offices and agencies. Every national of a Member State shall be a citizen of the Union. Citizenship of the Union shall be additional to national citizenship and shall not replace it.*" (Lisbon Treaty, p.25).

The second and third paragraphs of the 'article 10' of the TEU have begun to underline the European citizens' rights: "*2. Citizens are directly represented at Union level in the European Parliament.*" and "*3. Every citizen shall have the right to participate in the democratic life of the Union. Decisions shall be taken as openly and as closely as possible to the citizen.*" (Lisbon Treaty, p.26).

Maybe one of the most important improvement of the European citizens is the 11th article of TEU: "*4. Not less than one million citizens who are nationals of a significant number of Member States may take the initiative of inviting the European Commission, within the framework of its powers, to submit any appropriate proposal on matters where citizens consider that a legal act of the Union is required for the*

purpose of implementing the Treaties." (Lisbon Treaty, p.26). This article claimed the close relations between the citizen and the decisions which being taken on his/her behalf can become a reality. (Sauron, 2011, p.1)

The second part of the TFEU is related to the non-discrimination and citizenship of the Union. The prohibition of discrimination and its conditions were underlined within the scope of article 18 and 19 of the TFEU. (Lisbon Treaty, p.72). The rights of the European citizens are determined in the 20-25 articles of the TFEU. Article 20 is the main article which shows the characteristic rights of the European citizens: *"1. Citizenship of the Union is hereby established. Every person holding the nationality of a Member State shall be a citizen of the Union. Citizenship of the Union shall be additional to and not replace national citizenship. 2. Citizens of the Union shall enjoy the rights and be subject to the duties provided for in the Treaties. They shall have, inter alia:*

(a) the right to move and reside freely within the territory of the Member States;

(b) the right to vote and to stand as candidates in elections to the European Parliament and in municipal elections in their Member State of residence, under the same conditions as nationals of that State;

(c) the right to enjoy, in the territory of a third country in which the Member State of which they are nationals is not represented, the protection of the diplomatic and consular authorities of any Member State on the same conditions as the nationals of that State;

(d) the right to petition the European Parliament, to apply to the European Ombudsman, and to address the institutions and advisory bodies of the Union in any of the Treaty languages and to obtain a reply in the same language. These rights shall be exercised in accordance with the conditions and limits defined by the Treaties and by the measures adopted thereunder." (Lisbon Treaty, p.72).

The other articles which are related to the European citizenship give detailed information about the rights of the citizens and about the exercise of these rights. (Lisbon Treaty, p.73-75).

As it can be seen, most of the articles which are related to citizenship are nearly the same as the Maastricht Treaty. The main idea was the same, but there were some supplementations which underline the exercise of the citizens.

III. CONCLUSION

The main aim of this study is to show the establishment and the improvement of the European citizenship notion within the context of the European treaties. With this purpose, all of the treaties which have mentioned about the citizenship were analyzed. As it can be understood from the study, although the Maastricht Treaty was the first one which legally underlined the citizenship, before Maastricht there were already some implications of that. The citizenship related articles of the treaties were analyzed and the most important result was accepted as the situation of the third country nationals which reside in the Union territories. They are excluded from the forms of democratic participation like voting in the elections to parliaments or assemblies at the national or regional level.

The European citizenship notion supported the shared values such as freedom, solidarity, and tolerance within the context of cultural cohesion. However, the differentiation between the member country citizens and the third country nationals can cause to a structural 'citizenship deficit'. According to the treaties, they will not have most of the rights if they do not take on the national citizenship of the host state. The European Union has instituted "the 2004 Citizens' Rights Directive" in order to guarantee a permanent residence form to nationals of other member states who have been resident for more than five years in the host state. But, despite the fact that the directive, the 'citizenship deficit' continue, because they still do not have any political rights. (Shaw, 1998, p.2552-2553) To sum up, if the European Union wishes to continue its 'unity in diversity' motto, it should give the democratic rights to the third country nationals which reside in the Union territories. The aim of the policy-makers should be to support the multilateral interaction of the European Union citizens and the richness of cultural diversity.

REFERENCES

A. C. Evans, (1982), "European Citizenship", *The Modern Law Review*, Vol. 45, No. 5, Pp. 497-515.

A. Wiener, (2003), "Citizenship", in European Union Politics, Editors: M. Cini, *Oxford*, United Kingdom, Pp. 397-414.

A. Wiener, (1997), "Making Sense of the New Geography of Citizenship: Fragmented Citizenship in the European Union", *Theory and Society*, Vol. 26, No. 4, Pp. 529-560.

C. Shore, (2004), "Whither European Citizenship? Eros and Civilization Revisited", *European Journal of Social Theory*, Vol. 7, No. 1, Pp. 27-44.

C.C. Montero, (2001), "Between EU Constitution and Individuals' Self: European Citizenship", *Law and Philosophy*, Vol. 20, No. 3, Pp. 345-371.

E.D.H. Olsen, (2008), "The Origins of European Citizenship in the first two Decades of European Integration", *Journal of European Public Policy*, Vol. 15, No. 1, Pp. 40-57.

F. G. Jacobs, (2007), "Citizenship of the European Union - A Legal Analysis", *European Law Journal*, Vol. 13, No. 5, Pp. 591-610.

J. L. Sauron, (2011), "The European Citizens' Initiative: Not such a good Idea?", *European Issue*, Fondation Robert Schuman Policy Paper, No. 192, Pp. 1-8.

J. Shaw, (1998), "The Interpretation of European Union Citizenship", *The Modern Law Review*, Vol. 61, No. 3, Pp. 293-317.

M. García & M. Tegelaars, (2003), "European Citizenship in the Making: From Passive to Active Citizens", *The Good Society*, Vol. 12, No. 2, Pp. 16-21.

P. Magnette, (1998), "European Citizenship from Maastricht to Amsterdam: The Narrow Path of Legitimation", *Journal of European Integration*, Vol. 21, No. 1, Pp. 37-69.

P.B. Lehning, (2001), "European Citizenship: Towards a European Identity?", *Law and Philosophy*, Vol. 20, No. 3, Pp. 239-282.

R. Bellamy & A. Warleigh, (1998), "From an Ethics of Integration to an Ethics of Participation: Citizenship and the Future of the European Union", *Millennium-Journal of International Studies*, Vol. 27, No. 3, Pp. 447-470.

R. Hansen, (1998), "A European Citizenship or a Europe of Citizens? Third Country Nationals in the EU", *Journal of Ethnic and Migration Studies*, Vol. 24, No. 4, Pp. 751-768.

S. Gagnon-Messier, (2003), "European Citizenship Introduction", *The Good Society*, Vol. 12, No. 1, Pp. 25-26.

T. Kostakopoulou, (1998), "European Citizenship and Immigration after Amsterdam: Openings, Silences, Paradoxes", *Journal of Ethnic and Migration Studies*, Vol. 24, No. 4, Pp. 639-656.

T. Tatransky, (2006), "European Citizenship Policy: Trying to Stimulate the Citizens' Sense of Belonging to the European Union", *Polish Sociological Review*, No. 156, Pp. 489-503.