**Małgorzata Knauff**, Assistant Professor at the Department of Decision Analysis and Support, Institute of Econometrics

"Symmetry-breaking in two player games via strategic substitutes and nonconcavities: a synthesis" (2010), with Rabah Amir and Filomena Garcia, *Journal of Economic Theory*, 145(5): 1968-1986

**Abstract**

This paper is an attempt to develop a unified approach to symmetry-breaking in strategic models arising in industrial organization by constructing two general classes of two-player symmetric games that always possess only asymmetric pure-strategy Nash equilibria. These classes of games are characterized in some abstract sense by two general properties: payoff nonconcavities and some form of strategic substitutability. Our framework relies on easily verified assumptions on the primitives of the game, and relies on the theory of supermodular games. The underlying natural assumptions are satisfied in a number of two-stage models with an investment decision preceding product market competition. To illustrate the generality and wide scope for application of our approach, we present some existing models dealing with R&D, capacity expansion and information provision, which motivated this study.

**Keywords:** Submodular games; Endogenous heterogeneity; Asymmetric Nash equilibrium; Inter-firm heterogeneity; Supermodular games

**JEL classification codes:** C72; C62; L11

http://dx.doi.org/10.1016/j.jet.2010.01.013

**Jakub Growiec**, Assistant Professor at the Department of Decision Analysis and Support, Institute of Econometrics

"Social Capital, Well-Being, and Earnings: Theory and Evidence from Poland" (2010), with Katarzyna Growiec, *European Societies* 12(2), 231-255.

**Abstract**

We study the relationship between two distinct dimensions of social capital (bridging and bonding social capital) and the personal performances of individuals: their reported subjective well-being (SWB) and earnings. A theoretical model is put forward which explains the sources and dynamics of social capital formation. It predicts an inverse U-shaped relationship between any type of social capital and SWB, an inverse U-shaped relationship between bridging social capital and earnings, and an unambiguously negative impact of bonding social capital on earnings. The key predictions of the model are confirmed using cross-section survey data from the 2005 wave of the 'Social Diagnosis' survey program conducted in Poland. Very low levels of bridging social capital observed in Poland imply that it is unambiguously beneficial to invest in it: both SWB of individuals and their earnings would increase in such case.

**Keywords:** bridging social capital; bonding social capital; earnings; subjective well-being; Poland

**JEL Classification Numbers:** D10; J20

http://www.informaworld.com/smpp/content~db=all?content=10.1080/14616690902718381

"Human Capital, Aggregation, and Growth" (2010), *Macroeconomic Dynamics* 14(2), 189-211.

**Abstract**

Human capital is embodied in people of different generations whose lifetimes are finite. We show that the finiteness of people's lives precludes human capital accumulation from driving long-run aggregate economic growth unless sufficiently strong externalities from aggregate human capital are introduced. Two possible channels for carrying forward such externalities are (i) knowledge spillovers and (ii) public education spending. Our findings shed new light on the foundations of the Uzawa–Lucas growth model. We also show that the cross-sectional Mincer equation, generated by a linear human capital accumulation equation at the individual level, does not carry forward to aggregate data.

Keywords: Human Capital Accumulation; Aggregation across Vintages; Externalities; Balanced Growth

http://journals.cambridge.org/action/displayAbstract?aid=7434744

"Knife-Edge Conditions in the Modeling of Long-Run Growth Regularities" (2010), *Journal of Macroeconomics* 32(4), 1143-1154.

**Abstract**

Balanced (exponential) growth cannot be generalized to a concept which would not require knife-edge conditions to be imposed on dynamic models. Already the assumption that a solution to a dynamical system

(i.e. time path of an economy) satisfies a given functional regularity (e.g. quasi-arithmetic, logistic, etc.) imposes at least one knife-edge assumption on the considered model. Furthermore, it is always possible to find *divergent* and *qualitative* changes in dynamic behavior of the model – strong enough to invalidate its long-run predictions – if a certain parameter is infinitesimally manipulated.

**Keywords:** Knife-edge condition; Balanced growth; Regular growth; Bifurcation; Growth model; Long-run dynamics

**JEL classification codes:** C62; O40; O41

http://dx.doi.org/10.1016/j.jmacro.2010.05.002

**Michał Jakubczyk**, Assistant Professor at the Department of Decision Analysis and Support, Institute of Econometrics

D. Golicki, M. Jakubczyk, M. Niewada, W. Wrona, J. Busschbach (2010): "Valuation of EQ-5D Health States in Poland: First TTO-based Social Value Set in Central and Eastern Europe", *Value in Health* 13(2), 289-297

## ABSTRACT

**Objective:** Currently, there is no EQ-5D value set for Poland. The primary objective of this study was to elicit EQ-5D Polish values using the time trade-off (TTO) method.

**Methods:** Face-to-face interviews with visitors of inpatients in eight medical centers in Warsaw, Skierniewice, and Puławy were carried out by trained interviewers. Quota sampling was used to achieve a representative sample of the Polish population with regard to age and sex. Modified protocol from the Measurement and Value of Health study was used. Each respondent ranked 10 health states and valued 4 health states using the visual analog scale and 23 using the TTO. Mean and variance stability tests were performed to determine whether using a larger number of health states per respondent would yield credible results. Modeling included random effects and random parameters models.

**Results:** Between February and May 2008, 321 interviews were performed. Modeling based on 6777 valuations resulted in an additive model with all coefficients statistically significant, $R^2$ equal to 0.45, and value −0.523 for the worst possible health state. Means and variance did not differ significantly for states valued in the middle and at the end of the TTO exercise.

**Conclusions:** This is the first EQ-5D value set based on TTO in Central and Eastern Europe so far. Because the values differ considerably from those elicited in Western European countries, its use should be recommended for studies in Poland. Increasing the number of health states that each respondent is asked to value using TTO seems feasible and justifiable.

**Keywords:** EQ-5D; Poland; quality-adjusted life-years; social value set; utility

http://onlinelibrary.wiley.com/doi/10.1111/j.1524-4733.2009.00596.x/abstract

Michał Jakubczyk, Bogumił Kamiński (2010): "Cost-effectiveness acceptability curves - caveats quantified", *Health Economics* 19(8), 955–963

## Abstract

Cost-effectiveness acceptability curves (CEACs) have become widely used in applied health technology assessment and at the same time are criticized as unreliable decision-making tool. In this paper we show how using CEACs differs from maximizing expected net benefit (NB) and when it can lead to inconsistent decisions. In the case of comparing two alternatives we show the limits of the discrepancy between CEAC and expected NB approach and link it with expected value of perfect information. We also show how the shape of CEAC is influenced by the skewness of estimate of expected NB distribution, the correlation between cost and effect estimates and their variance. In the case of more than two options we show when using CEACs can lead

to non-transitive choices in pair-wise comparisons and when it lacks independence of irrelevant alternatives property in joint comparisons.

**Keywords:** cost-effectiveness acceptability curves; net benefit; willingness to pay; monotonicity; uncertainty

http://onlinelibrary.wiley.com/doi/10.1002/hec.1534/abstract

**Bogumił Kamiński**, Assistant Professor at the Department of Decision Analysis and Support, Institute of Econometrics

"Influence of different antiplatelet treatment regimens for primary percutaneous coronary intervention on all-cause mortality" (2009), with: Adam Witkowski, Paweł Maciejewski, Wojciech Wąsek, Łukasz A. Małek, Maciej Niewada, Janusz Drzewiecki, Maciej Kośmider, Jacek Kubica, Witold Rużyłło, Jan Z. Peruga, Dariusz Dudek, Grzegorz Opolski, Sławomir Dobrzycki, Robert J. Gil on behalf of the STEMI 2003 Registry Collaborators, *European Heart Journal* 30(14), 1736-1743

**Abstract**

**Aims** The aim of this analysis was to examine the influence of different in-cath-lab antiplatelet regimens for the primary percutaneous coronary intervention (PCI) on all-cause mortality.

**Methods and results** The study group consisted of 7193 patients (pts) undergoing primary PCI in 38 centres in 2003 in Poland. All patients received pretreatment with 300 mg of aspirin, 992 pts (14%) received glycoprotein (GP) IIb/IIIa inhibitors, 2690 pts (37%) were treated with 300 mg loading dose of clopidogrel, and 1566 (22%) received combined antiplatelet treatment with both GP IIb/IIIa inhibitors and clopidogrel. Remaining 1945 patients (27%) did not receive GP IIb/IIIa inhibitors or clopidogrel. Primary endpoint of the study was all-cause mortality up to 1 year from ST-segment elevation myocardial infarction (STEMI). One year mortality rates in the four groups were: 10.4%, 9.0%, 9.7%, and 15.3%, respectively. Propensity-adjusted survival analysis showed significant reduction of mortality for combination therapy with GP IIb/IIIa inhibitors and clopidogrel, clopidogrel alone, and GP IIb/IIIa inhibitors alone over aspirin alone. No additive effect on survival was seen for a combination therapy with GP IIb/IIIa inhibitors and clopidogrel in comparison to treatment with clopidogrel alone.

**Conclusion** In this large cohort, multicentre STEMI registry in-cath-lab use of GP IIb/IIIa inhibitors and clopidogrel alone or in combination was associated with the reduction of 1 year all-cause mortality in the setting of primary PCI in comparison with aspirin only. However, the use of GP IIb/IIIa inhibitors on top of 300 mg loading dose of clopidogrel did not further reduce mortality.

http://eurheartj.oxfordjournals.org/content/30/14/1736.short

"Pulse Pressure - Independent Predictor of Poor Early Outcome and Mortality following Ischemic Stroke" (2009), with: Katarzyna Grabska, Maciej Niewada, Iwona Szarzyńska-Długosz, Anna Członkowska, *Cerebrovascular Diseases*, 27 (2), 187-192

**Abstract**

*Background:* Pulse pressure (PP) in acute stroke may be related to the outcome. The link between PP in the first week following ischemic stroke and early outcome was assessed. *Methods:* We calculated mean PPs during the first 7 days after stroke onset in 1,677 patients. Poor outcome at hospital discharge was defined as a modified Rankin scale score of 3 or more points or death. Logistic regression was developed to evaluate PP as an independent predictor of early outcome. *Results:* For patients with poor outcomes the mean PP during the first week was higher than that for patients with non-poor outcomes. A logistic regression model confirmed that elevated mean PP was independently associated with poor outcome at discharge and 30-day mortality.

*Conclusion:* Elevated PP during the acute phase of ischemic stroke is an independent predictor of poor early outcome at hospital discharge and 30-day mortality.

**Key Words**: Ischemic stroke; Pulse pressure; Blood pressure

http://content.karger.com/produktedb/produkte.asp?doi=185611

"Impact of diabetes on survival in patients with ST-segment elevation myocardial infarction treated by primary angioplasty: Insights from the POLISH STEMI registry", with: Giuseppe De Luca, Łukasz A. Małek, Paweł Maciejewski, Wojciech Wasek, Maciej Niewada, Bogumił Kamiński, Janusz Drzewiecki, Maciej Kośmider, Jacek Kubica, Witold Ruzyłło, Jan Z. Peruga, Dariusz Dudek, Grzegorz Opolski, Sławomir Dobrzycki, Robert J. Gil, Adam Witkowski, on behalf of the STEMI 2003 Registry Collaborators, *Atherosclerosis* 210, 516-520, 2010

**Abstract**

***Background:*** It has been shown that, among patients with ST-segment elevation myocardial infarction (STEMI), diabetes is associated with a significantly higher mortality. The aim of this study was to investigate in a large cohort of patients the impact of diabetes on mortality in a large cohort of patients with STEMI treated with primary angioplasty.

***Methods:*** Our population is represented by consecutive patients with STEMI treated by primary angioplasty and enrolled in the POLISH registry in 2003. All clinical, angiographic, and follow-up data were prospectively collected. Diagnosis of diabetes was based on history of diabetes at admission.

***Results:*** Among 7193 patients, 877 (12.2%) had diabetes at admission. Diabetes was associated with more advanced age ($p < 0.0001$), higher prevalence of female gender ($p < 0.0001$), hyperlipidemia ($p < 0.0001$), shock at presentation ($p < 0.0001$), renal failure ($p < 0.0001$), previous myocardial infarction ($p < 0.0001$), more often treated after 6 h from symptom onset ($p < 0.0001$). Diabetes was associated with more extensive coronary artery disease ($p < 0.0001$), less often treated with stenting ($p < 0.0001$). Diabetes was significantly associated with impaired epicardial reperfusion (TIMI 0–2: OR [95% CI] = 1.81 [1.5–2.18], $p < 0.0001$), that persisted after correction for baseline confounding factors (OR [95% CI] = 1.33 [1.075–1.64], $p = 0.009$). At a mean follow-up of $524 \pm 194$ days, diabetes was associated with higher mortality (unadjusted cumulative mortality: 23.5% vs. 12.6%, unadjusted HR = 1.95 [1.66–2.3], $p < 0.0001$), that persisted after correction for confounding factors (adjusted cumulative mortality: 13.3% vs. 10.7%, adjusted HR = 1.23 [1.04–1.46], $p = 0.013$).

***Conclusions:*** This study shows that among STEMI treated by primary angioplasty diabetes is independently associated with impaired epicardial reperfusion and higher mortality.

**Keywords:** Diabetes, STEMI, Primary angioplasty, Mortality

http://www.atherosclerosis-journal.com/article/S0021-9150%2809%2901020-X/abstract

Michał Jakubczyk, Bogumił Kamiński (2010) “Cost-effectiveness acceptability curves - caveats quantified", *Health Economics* 19(8), 955–963

## Abstract

Cost-effectiveness acceptability curves (CEACs) have become widely used in applied health technology assessment and at the same time are criticized as unreliable decision-making tool. In this paper we show how using CEACs differs from maximizing expected net benefit (NB) and when it can lead to inconsistent decisions. In the case of comparing two alternatives we show the limits of the discrepancy between CEAC and expected NB approach and link it with expected value of perfect information. We also show how the shape of CEAC is influenced by the skewness of estimate of expected NB distribution, the correlation between cost and effect estimates and their variance. In the case of more than two options we show when using CEACs can lead to non-transitive choices in pair-wise comparisons and when it lacks independence of irrelevant alternatives property in joint comparisons.

**Keywords:** cost-effectiveness acceptability curves; net benefit; willingness to pay; monotonicity; uncertainty

http://onlinelibrary.wiley.com/doi/10.1002/hec.1534/abstract