Professor Stanisława Bartosiewicz celebrates her 100th birthday

Józef Dziechciarza

On 8 May 2020, Professor Stanisława Bartosiewicz celebrated her 100th birthday. Her friends and students gathered to celebrate this event and to honour the Professor's outstanding achievements in the field of research and didactics, and the academic guidance provided to her former students, who are now recognised scientists.



1. An outline of the biography

Professor Stanisława Bartosiewicz was born on 8 May 1920 in Brzeżany, Podolia, now Ukraine, in a family with academic background. In 1938, she graduated from the neoclassical gymnasium and began studying at the Academy of Foreign Trade in Lviv, which was interrupted by the outbreak of the Second World War.

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The need for gainful employment primarily marked the war period.



In 1946, Professor Stanisława Bartosiewicz settled with her parents in Lower Silesia. She lived in the town of Żarów for the first six months and then moved to Wrocław.

While working, Professor Stanisława Bartosiewicz resumed her previously interrupted studies at the beginning of 1947, at a newly-established tertiary-level institution – the private Higher School of Commerce.

She completed her first-cycle studies in economics in 1949 as one of the first graduates of this University – her diploma was issued as a second such document awarded by this university.



During her studies, as early as in 1947, at the invitation of her future mentor, Professor Jan Falewicz, she started combining her professional work outside the University with the function of a volunteer assistant at the Department of Business Economics, later Department of Statistics, at the Wrocław Higher School of Commerce. Her scientific interests, influenced by Professor Falewicz, focused on the application of quantitative methods in enterprise management. Since then, her entire life has become associated with the Wrocław University of Economics and Business, where she has obtained all possible levels of academic qualification and within the structures of which she performed many responsible functions

In 1952, she married Tadeusz Bartosiewicz.

In the difficult post-war years, Professor Stanisława Bartosiewicz combined her professional work with an assistantship at the University and her studies. She gained a master's degree in 1953, completing her second-cycle education at her Alma Mater, which in 1950, after undergoing nationalisation, changed its name to the Higher

School of Economics in Wrocław. Her master's thesis was entitled *Regression analysis as a tool for the assessment of the economic efficiency in an enterprise.* In the years 1953–1957, she worked as a senior assistant at the Central Institute of Scientific and Technical Documentation in Warsaw. During that period, Professor Bartosiewicz's two daughters, Anna and Ewa were born.

In 1953, after returning to Wrocław, she started working as an assistant professor at the Wrocław University of Economics and Business (Pol. Akademia Ekonomiczna) in the Department of Statistics, headed by Professor Jan Falewicz. She obtained a doctorate in economics in 1962 at her Alma Mater, with a dissertation entitled *Adequacy of indicators characterising the activity of enterprises*.

In 1966, she was appointed associate professor at the Institute of Economic Accounting Methods. At the same time, she assumed the position of the head of the Econometrics Unit (later Department of Econometrics). She remained the head of the Department of Econometrics until her retirement in 1990.

On 2 February 1984, Professor Bartosiewicz received a postdoctoral degree in economic sciences (Pol. habilitacja). In 1988, she was awarded the title of Professor of Economic Sciences.

Below is an outline of Professor Bartosiewicz's employment record:

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25 March 1947 – 31 Dec. 1947 – assistant volunteer;
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1 Jan. 1948 – 31 Dec. 1949 – assistant;
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1 Jan. 1950 – 30 Aug. 1953 – senior assistant;

1 Nov. 1953 – 30 Nov. 1957 – senior assistant (Warsaw);

1 Dec. 1957 – 31 Dec. 1957 – senior assistant;

1 Jan. 1958 – 31 Oct. 1968 – assistant professor;

1 Nov. 1968 – 31 May 1988 – associate professor;

1 June 1988 – 30 Nov. 1990 – professor;

1 Dec. 1990 – 30 Sept. 2006 – part-time professor.

2. The person

Professor Stanisława Bartosiewicz has been a mentor to many students. She pays attention to the individuality and development of a scientific personality. She is always ready to help and offer sound advice, especially being able to interpret complicated quantitative methods quickly and identify an adequate practical approach, which are her particularly appreciated gifts.

She is valued and held in high esteem by Polish econometricians and statisticians. She was elected member of the Statistics and Econometrics Committee of the Polish Academy of Sciences several times.



Her numerous distinguishing abilities include her unique talent for leadership, which is reflected in her own demeanour, not only limited to giving orders. Her colleagues and students know what kind of behaviour and actions are expected and appreciated and which are unwelcomed. The professor needs not articulate her expectations, as she herself sets an excellent example to follow.

An equally distinctive feature of her character is the rare ability to focus solely on a problem, not letting any personal sympathies or animosities towards the person presenting the problem to interfere with the process.

The great mind of Professor Stanisława Bartosiewicz is widely recognised. Professor Juliusz Siedlecki, in his address to the scholar expressed the wish for her wise advice and assistance to continue benefitting him throughout his further career. In this context, he referred to Seneca's thought: *supporting and helping is a testimony of a noble and wonderful mind. Whoever is such a benefactor, imitates God.*

Professor Janusz Łyko considers Stanisława Bartosiewicz a role model of a dedicated professor, an example of high-standard decency, a recognised scientist and teacher, a person of an exceptionally vivid mind.

Professor Bartosiewicz's friends and colleagues underline her life wisdom and understanding. As a scientist, she lets the principle of self-verification of previously created theories, concepts or definitions guide her actions, which is what makes a scientist a researcher.

Her life philosophy which stresses the necessity of dialogue and search for compromise-based solutions, is what guides the activities of her numerous followers,

including the academic community of the Wrocław University of Economics and Business. Thanks to this inspiration, they developed a habit to look for solutions to any arising issues together, in the course of group discussion. Professor Bartosiewicz's unique skills, such as her widely-recognised ability to analyse and accurately generalise notions and situations, her perceptiveness, talent to motivate others to engage in creative activities and to conduct productive discussions, her problem-solving abilities as well as scientific intuition, are all greatly appreciated and admired. The Professor's credo: don't talk about forms, talk about ideas, accurately illustrates her general approach to both science and life.

Professor Stanisława Bartosiewicz has a great sense of humour, which enables her to see people, phenomena and actions in a proper perspective. She tends to apply this sense of humour to her professional life as well, which is reflected, for example, in the title of her book: *Econometrics with a pinch of salt*, a book on complicated issues relating to econometrics.

She has always sought opportunities for self-development and broadening her knowledge. With her distinct self-distance and in a playful tone, she spoke of her latest achievements, which included learning to use a computer at the age of 84.

Professor Bartosiewicz displays her great sense of humour also in private life. She is known for being an expert in eastern borderland jokes, which she tells with great eloquence and in original accent.

Professor Bartosiewicz has a rich life history. She shared some of her life experiences in her autobiography entitled *Crumbs of life*.

In the book, she tells the story of how Professor Jan Falewicz offered her the position of an assistant: she attended his lectures on *Business Economics*, which were essentially about the econometric analysis of costs. After reviewing her exceptionally diligent notes from the course, Professor Falewicz invited Professor Bartosiewicz to become his assistant.

Her ability to write structured poems based on Japanese patterns is also widely admired.

When analysing the sources of satisfaction and success in life, Professor Bartosiewicz mentions such factors as scientific intuition, experience and teaching skills. She says that her ongoing participation in academic life gives her much strength and fosters new interests. Meeting friends inspires her to engage in new activities, such as writing books.

3. The scholar

Professor Stanisława Bartosiewicz is one of the most outstanding scientists in the field of econometrics in Poland. Her research interests were shaped during her studies, under the influence of Professor Jan Falewicz, who, along with Paweł Ciompa, is

a pioneer in micro-econometric research. She is considered the founder of the Scientific School of Econometric Modelling. Her theoretical and methodological research included econometric modelling, multivariate statistical analysis and methods of decision-making under uncertainty.

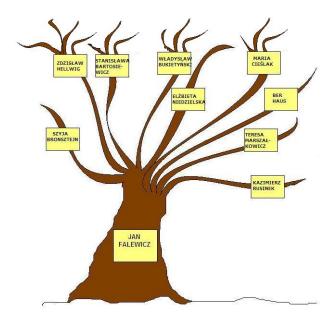
In an attempt to characterise her extraordinary scientific achievements, two general trends may be distinguished: theoretical and methodological, and application. As mentioned before, the practical part of the research interests of Professor Bartosiewicz has been influenced by her mentor, Professor Jan Falewicz, who, as she often recalls, conducted the econometric analysis of costs. He formulated pioneer proposals for the application of mathematical tools in enterprise management. The subject of cost analysis has remained of particular interest to Professor Bartosiewicz throughout the entire period of her scientific and research activity. She is the author of a chapter on econometric analysis of costs in the textbook *Econometrics. Methods and analysis of economic problems*. She always stresses the fact that costs is an area of a company's operations, which involves numerous management elements, requiring the application of a variety of quantitative methods.

During her studies under the supervision of Professor Falewicz, Stanisława Bartosiewicz worked on the construction of Clark's cost budget at the Pafawag State Wagon Factory in Wrocław. It was then that her scientific interests began to develop to their fullest. Her scientific interests focused on the search for optimal statistical (one could even say, econometric) methods. Those methods were considered tools serving to control and program the economic activity of enterprises. Her bachelor's thesis entitled *Criticism of Clark's system* and master's thesis entitled *Regression analysis as a tool for examining the economic efficiency of enterprises* reflected these interests.

Further research relating to the indicated field was presented in the published doctoral dissertation entitled *Adequacy of indicators characterising the activity of an enterprise* (1962). Her doctoral dissertation, and especially its first part, entitled *Theoretical issues*, constitutes an original systemic view of an enterprise's activity as a relatively isolated element of a more extensive system of the national economy, which places the study within the scope of cybernetics. The whole dissertation (the above-mentioned first part and the second part, entitled *Statistical issues*), was published as a monograph entitled *On the correctness of the construction of indicators characterising the activity of an enterprise*.

The most important areas of Professor Bartosiewicz's theoretical and methodological research include: econometric methods, the decision-making theory, statistical multidimensional comparative analysis, input-output methods as well as the mathematical theory of organisation. In the field of econometric modelling, Professor Bartosiewicz is the author of influential and pioneering publications, such

as the monograph entitled *Econometrics*. The technology of econometric information processing (1976, 1989). In this book, she outlines the entire procedure of processing economic information by means of an econometric model. Along with an analysis of standard econometric methods, she presents techniques which constitute an original contribution to the theory of econometrics.



One of the most useful solutions the author introduces is a graph-based method of selecting explanatory variables for the econometric model, which is supplemented with a technique of choosing variables in nonlinear models. The most significant concept here concerns constructing replacement variables (proxies), i.e. an algorithm meant to substitute variables that cannot be measured directly with proxy variables in the form of composite indicators obtained by methods of multivariate comparative analysis. Professor Bartosiewicz's other valuable input includes devising a procedure for constructing a composite indicator which maintains the original value of the variance. The most utilitarian approach is the technique for selecting a model function class based on the visual assessment of empirical regression with projections of points on the coordinate plane. Among her other significant achievements is the introduction of a modification which simplifies the testing of autocorrelation with the Student's test.

The essential part of Professor Bartosiewicz's scientific activity is combining the econometric modelling theory with practical economic applications, especially in

micro-econometrics, which is applied e.g. in a monograph entitled *On the correctness* of the construction of indicators characterising the company's activity (1965). In this work, she introduces a cybernetic, relatively isolated system of an enterprise.

Professor Bartosiewicz's particularly notable achievement is ordering the procedure of the verification of econometric models by arranging the criteria of goodness of the model. She developed a method of selecting the analytical form of a model with several explanatory variables and formulated procedures for testing the residuals' symmetry and autocorrelation.

The second important monograph relating to this field is entitled *Specificity* of econometric models and their application in the analysis of socio-economic phenomena (1987), which contains a summary and a review of the professor's original scientific achievements. Additionally, it includes interesting reflections on the application of econometric models to economic practice.

Professor Bartosiewicz has also done research on multidimensional statistical analysis and methods of decision making under uncertainty. In the work *Elements of economic calculus* (1978, co-authorship), she presented an original approach to multi-criteria mathematical programming based on the concept of the game theory.

Another significant area of her research is the application of mathematical tools in business management, mainly in terms of cost analysis. A reflection on this part of her research is included in the book *Econometrics*. *Methods and Analysis of Economic Problems* (1998), which Professor Bartosiewicz co-authored.

As far as econometrics is concerned, Professor Bartosiewicz introduced decision-making, balance sheet accounts (input-output analysis) and organisation-related (network analysis) issues into the Polish theory and practice. Particularly noteworthy are three papers related to the PERT method, in which she provides original algorithms for solving network problems. Her research results regarding the PERT method were published in a series of articles in the Statistical Review and Scientific Journals of the Wrocław University of Economics and Business. These include: On the technique of applying the PERT method (1966), On ordering nodes in the PERT network (1966), Contribution to the technique of applying the PERT method (1967).

The original scientific achievements of Professor Bartosiewicz include repealing the assumption of simple proportionality of the dependence of input and output tables and the transfer of the technique of flow analysis onto a microscale, i.e. the enterprise.

An undoubtedly significant publication of Professor Bartosiewicz is her book *Wrocław Econometrics*, which includes a complete list of scholars working in the widely-defined field of econometrics and linked to tertiary institutions in Wrocław. Moreover, the book contains a comprehensive overview of the achievements of the scientists involved in developing econometric methods within the Wrocław academic centre.

A distinctive feature of her scientific work is keeping theoretical considerations simple, communicative and practically useful. She withstands the current tendency of presenting simple notions in a complicated manner, i.e. she makes sure that complex scientific problems are presented in a simple and approachable form. It is manifested, for example, in the way she presents computational algorithms in the form of procedures, providing a comparatively easy and convenient means to computerising econometric research.

Professor Stanisława Bartosiewicz has always sought to utilise quantitative methods in specific practical applications. The most notable achievements in this area include methods of settling spare parts in repaired vehicles, planning the optimal size of a warehouse and a system of technical and economic indicators for the management of the auxiliary economy.

Professor Bartosiewicz presents the connection of theoretical tools with economic applications in her acknowledged book entitled *Specification of econometric models* and their use in the analysis of socio-economic phenomena (1987).

Professor Bartosiewicz's second most important area of research activity is multidimensional statistical analysis. She concentrates especially on one of its sections, namely on multidimensional comparative analysis. Methodological achievements of Professor Bartosiewicz include devising a method of determining the path of proportional development, the technique of composite indicators construction, the algorithm for determining subsets of similar objects, whose similarity criterion is a parallel line of regression, as well as a cybernetic system of an isolated enterprise.

Professor Bartosiewicz also researched mathematical methods of decision-making, nowadays referred to as description operations research. In particular, she devised a macro-scale decision-making tool using elements of the game theory. These propositions were published in *Elements of economic calculus*, a book co-authored by the Professor and published in three editions.

It is worth mentioning that Professor Bartosiewicz is always eager to participate in scientific conferences, during which she provides young scientists reporting on their research with perceptive and kind comments, as she assumes a practical approach and is able to interpret complicated quantitative methods quickly and efficiently. Her favourite conferences are those held in Zakopane, Toruń and Szczecin. In 2019, she prepared and presented several lectures for some of the planned seminars.

4. The teacher

Professor Stanisława Bartosiewicz can boast outstanding achievements in teaching and education-related activities. She is well known to every employee of the Wrocław University of Economics and Business. During their studies, some of them had the privilege of attending her classes and lectures.

At the turn of the 1950s and 1960s, the subject of econometrics appeared in the curricula of economic schools for the first time. Professor Bartosiewicz initiated lectures on this subject at the University. Jointly with Professor Zdzisław Hellwig, she wrote a textbook entitled *Representative method*, which at that time was considered a very modern publication. She was the author of a section entitled *Selected issues in econometrics*. Professor Bartosiewicz is also the co-author of a textbook published by PWE (three editions) entitled *Outline of econometrics*.

Stanisława Bartosiewicz has an outstanding record of teaching achievements. She taught several different subjects, among which was the theory of statistics, industrial statistics, representative methods, econometrics with elements of input-output analysis techniques, mathematical programming, as well as multidimensional comparative analysis.

Her didactic work involved not only conducting classes, but also preparing teaching aids – she is the author and co-author of almost twenty manuals and textbooks.

Professor Bartosiewicz was the supervisor and reviewer of several hundred master's and bachelor's theses.

5. A Mentor

Just as Professor Jan Falewicz was a source of inspiration throughout her scientific career, Professor Bartosiewicz went on to inspire her own students (and she still does so), stimulating their individual development. Professor Bartosiewicz is the founder of the scientific school of econometric modelling developed at the Wrocław University of Economics and Business. The research trends she initiated sparked her students' scientific interests.

The Professor's outstanding teaching accomplishments are reflected in the academic achievements of her own students: thirteen obtained a doctorate under her supervision, five doctoral students received the title of professor and two of habilitated doctor. She reviewed thirty-six doctoral dissertations and nine habilitation theses.

The professor always focuses on individuality and the development of a scientific personality. She never attempts to impose research topics, but rather offers her assistance and valuable scientific advice.

Wiesław Pluta has been developing research on the use of quantitative methods in corporate finance, which he discusses in his articles, including *Multidimensional comparative analysis in econometric modelling* (1986), or *Financial planning in an enterprise* (1999). Edward Nowak focuses on the use of quantitative methods in accounting and is the author of several related publications, e.g. *Taxonomic methods in the classification of socio-economic objects* (1990), *Theory of costs in enterprise management* (1996), or *Accounting in enterprise controlling* (1996, co-authorship). Józef Dziechciarz and his team continue to examine the issues of econometric modelling, especially modelling in conditions of heterogeneity of

data sets, modelling based on qualitative data and the development of the robust regression techniques, and their findings are described in publications including Econometric modelling of economic processes: models with variable and random parameters (1993), or The decision-making process support in the economy: econometric models with variable and random parameters as a simulation and analysis tool (1995, co-authorship). The research interests of Krzysztof Jajuga focus on the broadly-understood problems of the financial market. His scientific work is described in articles entitled Capital Management (1993), Investments: financial instruments, financial risk, financial engineering (1998, co-authorship). Ludmiła Waszkiewicz continued to develop her scientific career in the field of health care management and biostatistics, while Jerzy Jakubczyc works in the finance and banking sector. All the above-mentioned scientists are professor Bartosiewicz's former students.

It is worth noting that Professor Bartosiewicz's work also inspires the youngest generation of researchers. A group of over fifty authors of doctoral theses, whose supervisors were once her students, undertook the issues of econometric modelling in their scientific work.

While being the dean, Professor Bartosiewicz informally oversaw numerous post-doctoral and doctoral students in the final stage of their habilitation or doctoral dissertation processes. Prior to the habilitation colloquium or the defence of the doctorate she offered her advice which proved invaluable, very insightful and kind, and has helped many doctoral and postdoctoral students to present their achievements to the best of their ability.

6. The organiser

Professor Stanisława Bartosiewicz has been inextricably associated with the Wrocław University of Economics and Business. During the establishment of the Wrocław Higher School of Commerce (today's Wrocław University of Economics and Business) in 1947, she was among its first students and employees.

Professor Bogusław Fiedor, former rector of the Wrocław University of Economics and Business, said that Professor Bartosiewicz, a student of the Lviv Academy of Foreign Trade, played a unique role in the history of their University. She is a person who unifies the Wrocław and the Lviv community. The Lviv academic community is a source of tradition for the city and its scientific development. The rector had the opportunity to learn about the professor's teaching skills in practice, as he attended her statistics classes during his studies. Thanking for all the years Professor Bartosiewicz worked for the University, he wished that she would be able to continue to add her tremendous intellectual and physical potential to the further development of the school, and that for many years to come her students and colleagues would be able to continue to experience her extraordinary humour, kindness and positive energy.

Professor Stanisława Bartosiewicz is one of the greatest contributors to the development of the Wrocław University of Economics and Business, starting in 1947 and continuing to this day. Throughout this period she has carried out several responsibilities.

Professor Bartosiewicz was actively involved in the creation and development of the Faculty of Management and Informatics, which evolved into the Faculty of Management, Informatics and Finance, at the Wrocław University of Economics and Business. It was in the early 1970s that Professor Bartosiewicz participated in the development of a new programme and organisational concept of the University, which led to the establishment of a new unit – the Faculty of Management and Informatics. In the years 1976-1990, she was the deputy dean and dean of this faculty. She was the deputy dean since the establishment of the faculty until 1984, and then she held the position of dean until 30 November 1990.

From the 1960s until her retirement in 1990, Professor Bartosiewicz was a member of the Faculty Council and the Senate at the University's Parliament.

Her research work, as mentioned before, inspired scientific interests of her students. As a result, she created the Department of Econometrics and headed it until her retirement.

Professor Stanisława Bartosiewicz managed research programs for many years. Moreover, she was the head of many scientific and research studies, often carried out for business practice. The vast majority of the findings could be directly applied in real life, including the already-mentioned system of settling spare parts in repaired motor vehicles, the planning of the optimal size of a warehouse, and the system of technical and economic indicators for the management of the auxiliary economy.

During her work at the University, Professor Bartosiewicz held many positions, which included serving as head of the consultation point in Jelenia Góra.

Professor Andrzej Gospodarowicz, dean of the Faculty of Management and Informatics in the years 1990–1996, recalled numerous occasions when Professor Bartosiewicz offered her valuable advice and enormous organisational assistance upon his assuming the function of the dean. At that time, a new law on higher education came into force and so the acquaintance of the previous dean, Professor Bartosiewicz, proved invaluable in the process of organising the scientific and didactic life in that challenging period.

7. Expressions of respect and recognition of success

Professor Stanisława Bartosiewicz received several decorations and distinctions awarded by the state, the scientific community and other institutions, for her outstanding achievements.

The highest academic title that an academic teacher may earn is an honorary doctorate, *doctor honoris causa*. The Senate of the Wrocław University of Economics and Business decided to award this honourable title to Professor Stanisława Bartosiewicz. The ceremony was held in the Senate Hall of Wrocław University of Economics and Business in Wrocław, on 12 March 2020, at 10 a.m.



The procedure of awarding the *doctor honoris causa* title to the professor consisted of the following stages: on 4 July 2019, the Faculty Council of the Faculty of Management, Informatics and Finance of the Wrocław University of Economics and Business appointed Professor Józef Dziechciarz (chairman), Ewa Stańczyk-Hugiet and Edward Nowak the Commission members to process the application to award Professor Stanisława Bartosiewicz with the title of *doctor honoris causa* of Wrocław University of Economics and Business.

On 12 September 2019, the Faculty Council of the Faculty of Management, Informatics and Finance of the Wrocław University of Economics and Business resolved to initiate the procedure to award Professor Stanisława Bartosiewicz with the honorary doctorate from the Wrocław University of Economics and Business. The reviewers of Professor Bartosiewicz's scientific achievements were: Teodor Kulawczuk, PhD, DSc, ProfTit, professor emeritus of the University of Gdańsk and Józef Pociecha, PhD, DSc, ProfTit, from the University of Economics in Krakow. Krzysztof Jajuga, PhD, DSc, ProfTit, Doctor Honoris Causa was appointed the promoter in the proceedings for the granting of the honorary title.

On 19 December 2019, the Senate of the Wrocław University of Economics and Business, after reviewing the Faculty Council's request, passed a resolution to confer the title of an honorary doctor of the Wrocław University of Economics and Business on Professor Stanisława Bartosiewicz.

Professor Bartosiewicz also holds the honour of the Lady Knight of the Order Golden Cross of Merit, the Knight's Cross and the Officer's Cross of the Order of Polonia Restituta. She was also awarded the National Education Commission Medal and the Teacher Badge of Merit.

On 21 May 2019, Dominik Rozkrut, PhD, President of Statistics Poland, awarded her with an honorary badge of merit for her contribution in the development of statistics of the Republic of Poland.

Professor Bartosiewicz also holds regional awards of the Builder Badge of Wrocław and Badge of Merit of Lower Silesia.

The Wrocław University of Economics and Business honoured Professor Stanisława Bartosiewicz with the title of Honorary Professor of the Wrocław University of Economics and Business.

She also holds the Crystal Alumnus title. It is awarded on behalf of the Wrocław University of Economics and Business, as a form of recognition for the Professor's numerous and longstanding achievements in research and teaching, as well as for her committed work for the academic community.

Her Alma Mater conferred on her the Medal of Merit of the Wrocław University of Economics and Business.

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