

Determinants of Temporary Employment in Poland

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Abstract

In the study I exploit European Social Survey Round 5 data to identify the determinants of temporary employment in Poland. As in this country the share of employees working under contracts of limited duration is the highest among all European Union member states, identifying the determinants of temporary employment is important not only for individuals but also for the policy-makers. The results of the analysis are supplemented with an investigation of the determinants of temporary employment for people younger than 30 years old as this phenomenon is commonly associated with young employees.

Key words: labour market, temporary employment, fixed-term employment, European Social Survey

Introduction

The primary objective of the study is to identify the individual determinants of temporary employment in Poland. Additionally the study aims at explaining whether the determinants of being a temporary worker change if the sample is limited to young people only.

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Hence there are two hypotheses to be verified, first one is that there are some individual characteristics which significantly influence the chances of being temporarily employed, both in case of young people and all employees. Another one is that these personal features differ with respect to the two above-mentioned groups.

The significance of the current study follows from the fact that since the beginning of the economic transition Polish labour market had to undergo many changes to adjust to market economy and to increase its competitiveness. One of the observable developments was the growing share of temporary workers defined as employees whose main job is supposed to end after a period of time that is fixed either at the precise moment in time or based on objectively predefined criteria¹. This phenomenon has a multidimensional influence on the labour market as its increasing popularity has different impact on the employees, employers and the aggregate economy, therefore it is a subject of concern for individuals as well as policy-makers.

Temporary work along with the part time work is one of the two major forms of atypical employment (De Grip 1997). Even though the researchers argue about the scope of this term (Liptak 2011), the distinctive feature of a fixed-term contract being the fact that a salary is guaranteed only up to the specific date, allows to state that it differs from traditional employment. This characteristic provides a tool for the employer to adjust both the size of his staff and the labour costs more rapidly which in turn can increase the competitiveness of a given company. As nowadays the ability to adopt to changing market conditions has a great value for the enterprises, it is understandable that they tend to exploit this form of employment more often than they used to.

In Poland temporary employment is mostly involuntary. In 2010 as much as 74,2% employees aged from 15 to 65 stated that the main reason for which they work under a fixed-term contract is that they couldn't find permanent employment². Hence one might suppose that for some of them working under a fixed-term contract is only an alternative to a desired but not attainable form of employment.

In order to better understand this phenomenon and to determine the factors influencing the probability of having a contract of limited duration I exploit data from the fifth round of a European Social Survey which was conducted in years 2010–2011. The usage of the ESS data allows to perform an analysis at individual level which in turn enables to identify which groups are in a greater threat of working under a kind of contract that is generally less favoured.

¹ According to Eurostat methodology.

² Eurostat, European Union Labor Force Survey (EU-LFS).

Economic literature often concentrates on the young people as they are considered to be mostly threatened by negative consequences of fixed-term employment (Barbieri 2007; Blanchard and Landier 2002; Kiersztyn 2007) therefore I provide additional analysis of the determinants of temporary employment for employees younger than 30 years old. The main aim of distinguishing between young people and all employees is that there might be some factors which initially influence the probability of having a given type of contract but later their impact fades away in favour of the others.

The study consists of three sections. In the first section of the study I provide a brief description of legal regulations concerning temporary employment and compare the extent of this form of employment in Poland and other European Union countries with the use of descriptive statistics provided by Eurostat. Additionally I try to assess the consequences of temporary employment. As it was mentioned before, its influence has many dimensions therefore its advantages and disadvantages are considered from the perspective of employers, employees and the aggregate economy. At the end of the first chapter I also provide the review of literature concerning individual determinants of temporary employment. Afterwards I proceed with the description of methods used to identify them. In order to assess the influence of the aforementioned determinants I estimate econometric models. In the third section I present and interpret the output obtained from these models and I provide their comparison. The last section concludes.

1. Multidimensional Influence of Temporary Employment

1.1. Temporary Employment in Poland

Employment relations in Poland are regulated by the Labour Code. Contracts of employment that are stipulated for the fixed term include contracts: for the period needed to perform certain work, for a definite period of time and for probationary period (Polish Labour Code, Art. 25).

Employees performing their duties under a fixed-term contract have equal rights concerning remuneration, conditions of work or work-related benefits, however they differ significantly from permanent employees in many areas. Even though such

contracts terminate at the end of the term for which they were concluded or when all the work is finished, it is much easier for an employer to terminate them by notice. Article 33 of the Labour Code states that parties to an employment contract for a fixed-term lasting more than 6 months may terminate it earlier upon a two-week notice. As for an employment contract for probationary period, the period of notice is from 3 days to 2 weeks depending on its length. Such terms are less favourable as compared to those that are applied to contracts of unlimited duration (from 2 weeks to 3 months depending on the period of employment, including the one with the previous employer). In addition to that it is not necessary to specify the reasons for termination which in the case of contracts of indefinite term are required not only to be provided but also to be true and concrete.

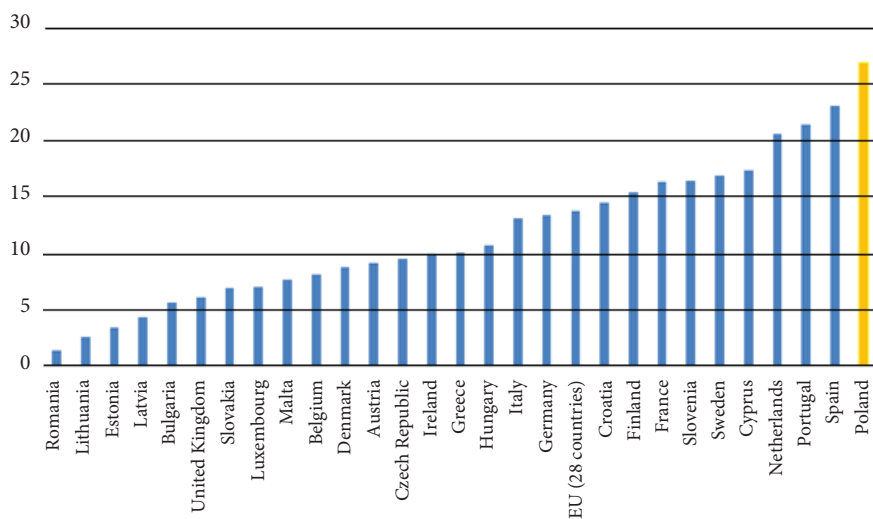
The Labour Code doesn't regulate the maximum length of the fixed-term contracts, however the number of subsequent agreements of that kind is limited to three as the third is treated as an equivalent of a permanent employment. The fact that there are no limitations with respect to its length allows employers to stipulate contracts for relatively long period of time, which means that a given person can work for many years in the same position, however employment relation is still not recognized as a permanent one.

Legal regulations in Poland give employers a possibility to offer fixed-term contracts which provide the lower level of protection to their employees. Because of that, such kind of contracts are often used as a substitute of traditional employment even though the employer considers the position to be permanent. On the other hand, greater the differences between traditional and atypical forms of employment in terms of workplace protection, the less desired by employees are the latter.

What is more, many people perform their occupational duties on the basis of civil law contracts which are considered as fixed-term agreements according to Eurostat methodology. As the dataset used in the study includes all the respondents who declared to be in the paid job, it's highly probable that some of those who declared to have a contract of limited duration, work on the basis of civil law contracts. Despite the fact that it is forbidden to offer this kind of an agreement if the work performed includes all the characteristics of employment relationship, employers very often strain the law and offer them even if the employment contract should be applied. In this case an employee is in a far worse situation as Labour Code regulations are not applicable. For instance employers can terminate the contract at will and without a notice, they do not have to provide contributions for the social insurance, there are no strict regulations of the overtime work and the personal responsibility of an employee is unlimited.

It is important to stress that in Poland contracts of limited duration are exploited to a remarkably great extent as compared to other EU member states. European Union Labour Force Survey (EU LFS) is an important source of information about the situation and trends in European labour market. The results of this survey indicate that Poland has the highest share of temporary employees among all European Union countries³. In 2013 they constituted as much as 26,9% of the total number of employees. Only in three other countries being Spain, Portugal and the Netherlands more than 20% of the total number of employees have a contract of limited duration. The average for all 28 member states is almost 14%, however in some of the new EU countries this ratio is below 5% which suggests that there are quite big differences between member states. Among those from Central and Eastern Europe, only in Slovenia this ratio is above EU-28 average. It confirms that in Poland a relative number of temporary employees is exceptionally high which however is not the case for most of the countries in the region. The share of temporary employees in the EU countries is presented in the figure 1.

Figure 1. Temporary employees, percentage of the total number of employees (2013)



Source: Eurostat, European Union Labour Force Survey.

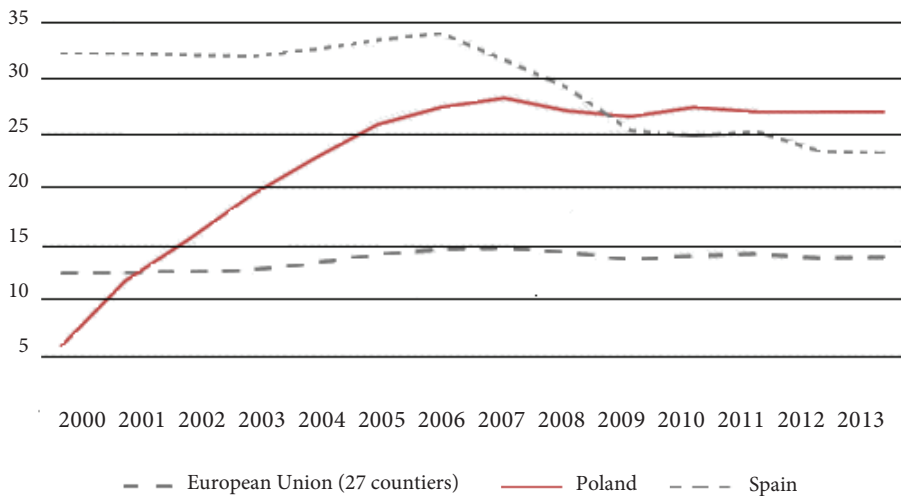
What is more, the results of the EU LFS survey confirm that the relative number of temporary employees in Poland increases much faster as compared to EU average (see figure 2). Even though the growth of their share seems to decline since 2008, it

³ As for 2013, using Eurostat methodology.

still remains at the highest level among all 28 countries. Until 2008 a higher share was observed only in Spain which on the contrary experienced a rather rapid decrease after reaching in 2006 the highest value ever noted in any of the member states. The average for the European Union countries was growing during analysed period, nevertheless, that increase was small as compared to the one observed on the Polish labour market.

The figure 2 shows that in Poland the share of temporary workers grew almost five times between 2000–2013 whereas the increase in the EU in that period was rather slow. The possible conclusion is that the data provided by Eurostat suggests that policy-makers in Poland should pay close attention to this phenomenon as the velocity of its development is outstanding.

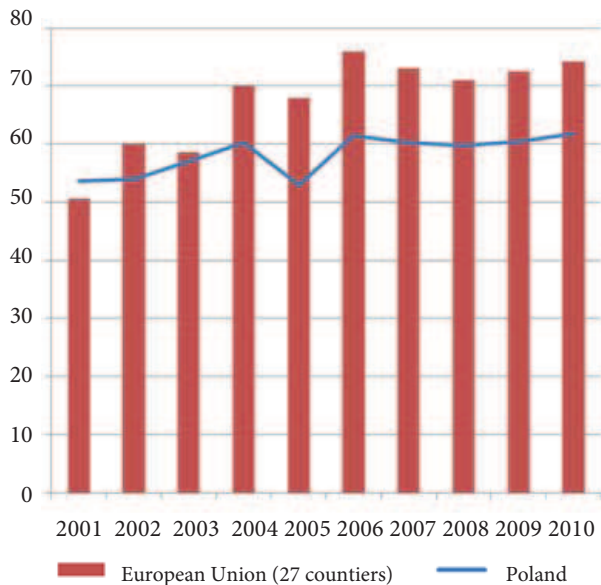
Figure 2. Development of temporary employment in the EU, percentage of the total number of employees (2000–2013)



Source: Eurostat, European Union Labour Force Survey.

As it was stated before, temporary employment in Poland is mostly involuntary. EU LFS provides the information about the main reasons for being temporarily employed and the main problem observed in Poland is a high rate of temporary employees who would like to have a permanent employment but couldn't find one. In 2010 they constituted as much as 74,2% of temporary workers. This group is particularly important as it gathers people whose work status is inadequate to their will. Unfortunately over the analysed period they constituted the majority of employees in this group (see figure 3).

Figure 3. Percentage of employees aged 15–64 whose main reason for being temporarily employed is that they couldn't find a permanent job (2001–2010)



Source: Eurostat, European Union Labour Force Survey.

Since 2006 the percentage of employees whose main reason for being temporarily employed is that they couldn't find a permanent job is over 70%. In Poland this ratio was also higher than the average for the EU member states in nine consecutive years since 2001. The other reasons indicated in the EU Labour Force Survey were: being on the probationary period (7,2%), not wanting a permanent job (8,4%) and being in education or training (10,2%). The value in the last category seems to be especially low as compared to 18,1% for all EU countries' average.

1.2. Literature Review

1.2.1. Legal, Economic and Social Effects of Temporary Employment

The multidimensional influence of the atypical forms of employment, including fixed-term contracts, has been a subject of numerous scientific research. Their social and economic impact is going to be considered from the perspective of firms, employees and the aggregate economy.

Firms

Legal regulations that enable employers to hire workers on the basis of contracts of limited duration provide many benefits for the firms. Thanks to an eased procedure of termination of employment, enterprises can adjust their workforce and therefore minimize the costs which is particularly helpful in case of demand fluctuations (Pfeifer 2007). The author of the study argues that the use of the fixed-term contracts causes the core staff to be less exposed to employment adjustments. The lower costs of labour are one of the most important aspects of atypical forms of employment and are also supposed to drive the competitiveness which is of crucial importance in the world economy. What is more, using contracts for limited period of time may reduce the expenditures on recruitment. Employers can use it as a tool to select the most prospective employees by hiring interns for the fixed-term and then prolonging the employment relationship only with chosen ones. This method is commonly used as termination of the permanent contract is a subject to greater legal regulation and involves additional costs. The use of this kind of agreements is popular and often referred to as 'screening device' (Portugal & Varejao 2009).

As far as disadvantages are concerned, employers may observe a decreased involvement in the duties performed or even isolation in the group of fixed-term workers (Król 2007). It can also occur that firms can lose valuable employees as they might change their job for a one where they could be employed on the basis of permanent contract. What is more, companies that save on trainings for the temporary employees might observe that they would not have the skills required for their current tasks, not to mention their further development within the company. This phenomenon intensifies during the crisis as companies decide to cut costs on training for temporary employees (Cutuli & Guetto 2012). Furthermore it can be concluded that as investment in human capital triggers innovation, providing the lower extent of training to fixed-term employees can even lead to lower number of new ideas and solutions which in turn can result in diminished output. All in all the employers shouldn't treat fixed-term contract as the only way of cutting costs and make sure that their employees' commitment is not lowered due to the type of contract they have.

Employees

Many aspects of the fixed-term employment that are considered to be profitable for the employer are at the same time unfavourable for the employee. For instance the aforementioned eased procedure of terminating that kind of contract can be treated as a shift of profits from one party to another. Fixed-term contracts are commonly

considered to be rather disadvantageous from the perspective of employees as they abridge the job security and limit their rights, as compared to permanent employment (Wratny 2008; Król 2007). Both authors also emphasise the lack of social bond between parties to the contract and lower possibilities of self-development understood as career opportunities and training provided. In addition to that, employers can exert pressure on the temporarily employed workers by simply telling them they would not extend their contract whereas they couldn't do that if they had a permanent one. This phenomenon is quite frequent as employers in Poland very often try to bypass regulations of the labour code with the use of contracts of limited duration and civil law contracts. They often do not follow the letter of the law and do not want to sign permanent agreements with their employees even though the labour code recognizes the work they perform as permanent employment (Jagodziński 2012).

The economic literature often concentrates on the influence of fixed-term contracts on the young as they constitute a group which is particularly exposed to being employed under this kind of contracts. They also have a greater chance of being trapped in the secondary market, understood as temporary labour market characterised by lower level of security (Barbieri 2007). What is more, being employed for the limited period makes it much more difficult to prove the solvency to the financial institutions. Reduced opportunities of being granted a credit can be very harmful to young people as sometimes it makes them postpone important life decisions such as family creation, buying a house or having a child. Fixed-term employment is also associated with lower wages which increases the probability of the lower quality of life in the future (Addio & Rosholm 2005).

However it is important to emphasise that for some people this kind of employment arrangement is preferable. Contracts of limited duration give a possibility to be noticed by potential permanent employer and to gain experience. It is primarily important to young people who lack professional experience as it gives them the chance to gain some necessary knowledge. However they must be aware that they are also in the risk of repeatedly being employed for the fixed-time as it was mentioned before.

It is also worth to add that some of the temporary workers agree to that kind of contract as they only want to undertake paid job during a specific period of time which is particularly visible during the season when additional supply on the labour market is partially satisfied by those who do not work in other times of a year. Fixed-term contracts are also a chance for those who couldn't find permanent job even if they want to have one. They treat temporary work as an alternative against being unemployed. This category should be taken into consideration as working

on contracts of limited duration may have negative influence on job satisfaction (Booth et al., 2002). In addition to that, the number of people who are in temporary jobs because they couldn't find a full time employment has increased sharply in the times of crisis (Institute for Public Policy Research analysis 2010).

The Aggregate Economy

Increased flexibility on the labour market is introduced as a step towards more efficient use of human resources and as a tool to reduce unemployment (Bernal-Vertugo et al. 2012) and to support the further economic growth. Fixed-term contracts as a mean to achieve the desired elasticity are also considered to reduce the cost of labour and to have a positive effect on job creation process (Wojnowska 2007) both of which are crucial in the global market characterised by an ever-increasing competitiveness.

However the direct negative relationship between market flexibility and unemployment is still disputable. Some of the researchers point out that in order to stimulate the employment, increased elasticity of the labour market has to be accompanied by appropriate interventions providing active help in finding work (Jackman et al. 1996) whereas other research indicates that the positive job creating effect triggered by liberalization of the use of fixed-term contracts is only temporary. The authors (Boeri & Garibaldi 2007) call this phenomenon a 'honeymoon effect'. What is more, in the study by Blanchard and Landier (2002) the authors argue that partial reforms that allow to terminate the fixed-term contracts at a very little cost without reducing the termination cost of permanent ones, lead to higher turnover in limited-duration jobs and eventually to even higher unemployment.

The positive effect on the output is also a topic of an ongoing debate. A study performed on the data from Spain (Alonso-Borrego et al. 2006) presents the opposite results. The increase in the number of fixed-term contracts leads not only to soaring unemployment but also to reduction in output. One of the reasons for it is the lack of investment in the fixed-term workers which in turn contributes to the poorer performance. As researchers argue about the influence of this kind of employment agreements – it is pivotal to underscore that their impact on the economy cannot be unanimously defined.

1.2.2. Determinants of Temporary Employment

Identifying the factors that foster the probability of being temporarily employed was a goal of several empirical studies, some of which included data from Poland. Studies concerning both cross-country variation as well as individual characteristics

were performed to better understand the phenomenon of fixed-term contracts in European countries.

Even though studies were conducted in different countries, they all revealed that personal traits determine the chances of being in temporary employment. What is more, exploring the relationship between certain individual characteristics and the type of the employment contract seems now to be of a greater importance than couple of years ago, as a result of increasing share of temporarily employed workers.

Baranowska & Gebel (2008) performed a study on temporary employment contracts in Central and Eastern European with the use of European Union Labour Force Survey data. Researchers emphasise that chances of finding a permanent employment are lower in a group of young and inexperienced workers. Their study, which focuses on the group of young people, also confirms the expected positive influence of the education level on these chances. Another finding is that there is no clear gender bias in the risk of being temporarily employed, as in some countries women are much more likely to have a contract of limited duration whereas in some others gender coefficient had an opposite sign. In several countries, including Poland, that effect was not statistically significant. As the authors of the study additionally control for workplace characteristics, they found that in all of the analysed countries except from Slovakia, there is a negative relation between the size of the company and the probability of having a fixed-term contract. Similarly, only in case of Estonia variables denoting education level were not significant. In all of the other countries people with medium and higher education face lower risk of being temporarily employed.

Kahn (2005) argues in his research, based on 1994–1998 data for selected European and North American countries, that the group which is most likely to be affected by the growing number of temporary workers resulting from employment protection legislation are: women, young, immigrants and less skilled. His results seem to prove that these groups are more vulnerable to being employed for the limited period of time not only in Europe. What is more, he points out that the stronger the collective bargaining coverage in a country, the worse their situation is. Hence the study suggests that employment protection legislation secures the permanent jobs of prime age men at the expense of the aforementioned groups. The previously described study by Baranowska & Gebel confirms that this phenomenon exists also in Central and Eastern European countries. Additionally the authors point out that it might be due to the fact that labour market outsiders such as young people are not adequately represented in the negotiations of social partners. As a consequence, insiders do not take proper actions to introduce outsiders to the market of permanent labour.

Salladarre & Hlaimi (2007) exploit the first round of the European Social Survey in order to analyse and compare the results from 19 European countries. Their study endorses the significantly less privileged position of young and immigrants and therefore tends to confirm the results observed in previously mentioned papers. However the influence of education level was not significant in some countries. In addition to that, temporary workers seem to be much more likely to participate in trade-unions and to work less hours than permanent workers. One of the most interesting findings from the study is that a probability of having a permanent contract decreases remarkably if the employee met an unemployment period during the last five years. The authors state that anterior unemployment might be considered as a period of human capital dispersion, hence people who were recently unemployed are less attractive for the employers. Consequently they conclude that an episode of unemployment causes the probability of having a permanent contract to decline.

D'Addio & Rosholm (2005) analysed 'European Communities Households Panel 1995–1999' data to investigate broadly many aspects of fixed-term employment including its determinants. Once again the coefficient associated with working hours reveals that people under this kind of contract work fewer hours. Also age is again of significant influence as young people turn out to be at higher risk of being employed temporarily. The results of the study suggests also that both men and women with experience are more likely to be employed for an unlimited period of time.

In all the analysed studies, individual characteristics were significant in explaining the probability of being temporarily employed. It might consequently be expected that some of them influence the probability of being employed on the basis of a fixed-term contract in Poland.

2. Methodology and Data

In the analysis I exploit the data from the 5th round of European Social Survey. The ESS is a multi-country survey conducted every 2 years. The fifth edition covers 28 countries, including Poland. Its aim is to identify and investigate the attitudes, mindset and behaviour of European populations. The project is 'designed and carried out to exceptionally high standards'⁴ which assures high reliability of results. Answers were collected from 01.10.10 to 06.02.11 with the use of Paper and Pencil method, being keyed from the questionnaire. The survey involves a minimum target response rate

⁴ By European Social Survey official website.

of 70% and the sample frame is the National Register of Citizens (PESEL) which is a register of all residents of Poland. The sampling design involves strict random probability sampling. In Poland 1,751 respondents answered to the questions from ESS round 5 questionnaire, 885 of whom declared to be in the paid work in last 7 days. On the other hand, 129 are unemployed but would like to have a job.

Table 1. Number of respondents according to their employment status

Employment status	Frequency	Relative frequency (%)
Unemployed and wanting a job	129	12.72
Employed	885	87.28
Total	1014	100.00

Source: Own computations.

The main drawback of the study is that there are questions that some of the respondents did not want to answer. However taking into consideration all 705 people⁵ who declared both to be in the paid work and to have an employment contract, it can be seen that the ratio of temporary to permanent workers is very similar to the one observed at the national level which is quite desirable as the results of the analysis should be representative for the whole population.

The sample designs in some participating countries, including Poland, were not able to provide equal chances of being selected to every participant. Therefore all the models used in this study are computed with the use of the design weight provided by the authors of the ESS which aims to correct for the differences in probability of selection.

Table 2. Number of respondents in the contracted paid job by the type of the contract

Contract type	Frequency	Relative frequency (%)
Fixed term	215	30.50
Permanent	490	69.50
Total	705	100.00

Source: Own computations.

Variables Used

The main aim of the study is to analyse and investigate the factors influencing the probability of being temporarily employed as opposed to being employed on the permanent basis and furthermore to compare the main logit estimates with the

⁵ Some of the respondents in the paid job declared to work without any contract.

determinants of temporary employment for the young where the sample is restricted to people who are less than 30 years old. Data obtained from the ESS survey allows to investigate these relationships at the individual level. In order to do that I introduce two econometric models with the binary dependent variables y_α and y_β which attain values:

$$y_{\alpha,\beta} = \begin{cases} 1 & \text{for respondents having a contract of limited duration} \\ 0 & \text{for respondents having a contract of unlimited duration} \end{cases}$$

α – unrestricted sample

β – sample restricted to young people only

The explanatory variables used to identify factors that foster the chances of having a fixed-term contract can be grouped into 2 groups:

- basic sociodemographic characteristics
- work-related characteristics

As far as individual sociodemographic characteristics are concerned, I investigate the typical factors of heterogeneity such as: age, gender, education and living with children.

Age is measured in years and it is included in regressions as a continuous variable. Moreover an additional variable `age_squared` is introduced to take into account the possible non-linear relationship. Gender is a dummy variable taking value 0 for women and 1 for men. The education level of the respondent is taken into account with the use of the variable `higher_education` which attains value 1 for those who have completed the higher education and 0 for those who have not. Education enrollment indicates whether a given person marked education as an activity performed during the last week and it is a binary variable (`education_enrollment`). One of the factors taken into consideration is also whether the respondent lives with children (`children_home`). The financial situation of a household is understood as a relative assessment of a current state, encoded with the use of variable `relative_income` which attains the following values: 1 – for respondents living comfortably on the present income, 2 – for respondents coping on the present income and 3 – for those who state that it is difficult or very difficult for them to live on the present income. The frequencies observed both in a group of fixed-term and permanent employees are provided in the table 3.

One of the drawbacks of the data from ESS survey is that some of the respondents did not provide answers to all of the questions which reduces the number of observations that can be used to construct an econometric model. Therefore the frequencies observed in each category do not always sum up to 490 and 215 for permanent and temporary employees respectively.

Table 3. Number of observations by sociodemographic characteristics and type of contract

Type of a contract Basic sociodemographic characteristics	Frequency		Relative frequency (%)	
	Permanent	Fixed-term	Permanent	Fixed-term
Age				
<30	86	107	17.55	49.77
30–54	327	86	66.73	40.00
>=55	77	22	15.71	10.23
Gender				
Male	265	111	54.08	51.63
Family				
Children living at home	312	90	63.67	41.86
Education level				
Higher education	189	59	38.57	27.44
Education enrollment				
In education	35	44	7.14	20.47
Financial situation of a household				
Difficult	77	46	15.84	21.40
Coping	351	146	72.22	67.91
Comfortable	58	23	11.93	10.70

Source: Own computations based on ESS5 data.

As far as work-related characteristics are concerned, they involve the following categories: size of a company which is denoted with the use of variable `company_size` taking on values from 1 to 5 depending on the number of its employees: 1– for less than 10, 2– for 10 to 24, 3– for 25 to 99, 4– for 100 to 499 and 5– for 500 or more employees. Working hours are also considered to possibly influence the chances of having a fixed-term contract, hence a dummy variable (`work_fulltime`) is introduced. It indicates whether a given persons' work involves at least 40 hours a week which is a standard workweek in Poland. Additionally the information about company's financial situation is used and it is grouped into 3 categories depending on the financial difficulties that a company was recently in: a great deal or some, not much and remaining category denoting no problems. Therefore variable `financial_difficulty` attains values from 1 to 3 where higher values indicate less financial difficulties. The answers 'great' and 'some' are merged due to the fact that among temporary employees there is only one person working in a company that has a lot of financial difficulties. It is also taken into consideration whether respondents experienced the period of unemployment. The binary variable `unemployed_3months` takes on value 1 for those who have been unemployed for at least 3 months and 0 for those who have not. The last two work related variables denote the experience in a given industry

(industry_experience) and in work in general (work_experience) expressed in years. Frequencies for work-related categories are also presented in the tabular form.

Table 4. Number of observations by work-related characteristics and type of contract

Type of a contract	Frequency		Relative frequency (%)	
	Permanent	Fixed-term	Permanent	Fixed-term
Establishment size				
Under 10	73	52	15.53	25.12
10 to 24	71	38	15.11	18.36
25 to 99	136	57	28.94	27.54
100 to 499	123	38	26.17	18.36
500 or more	67	22	14.26	10.63
Company's financial situation				
A great deal of financial difficulty	28	1	6.59	0.65
Some financial difficulty	98	44	23.06	28.57
Not much financial difficulty	111	36	26.12	23.38
No financial difficulty	188	73	44.24	47.40
Contracted hours				
Work fulltime – 40 hours and more	413	182	84.29	84.65
Unemployment experience				
Experienced a period of unemployment of more than 3 months	130	109	26.53	50.70
	Mean		Standard deviation	
Experience	Permanent	Fixed-term	Permanent	Fixed-term
Work experience	19.78	11.44	12.06	10.87
Industry experience	13.87	5.98	10.46	7.21

Source: Own computations.

3. Results

The main aim of the third chapter of the study is to identify the determinants of temporary employment in Poland. It is also important to verify if the determinants of temporary employment change if the sample is restricted to young people only. In order to do that, econometric models based on the data from ESS 5 are introduced.

3.1. Determinants of Temporary Employment in Poland

The first logistic regression is used to create Model A which is supposed to identify the determinants of fixed-term employment and furthermore assess their influence on the probability of having this kind of employment agreement as opposed to being employed on the basis of a permanent contract. The econometric model was created with the use of statistical software stata. The estimation was completed according to general-to-specific approach (Greene 2002) with the downward reduction of the model to the preferred specification which in our case is the model in which all the variables are statistically significant at 0.05 level. The result is the final form of Model A.

Table 5. Determinants of temporary employment in Poland

VARIABLES	(1)	(2)
	All regressors	Model A
agea	-0.291*** (0.0781)	-0.278*** (0.0680)
age_squared	0.00343*** (0.000897)	0.00311*** (0.000816)
gender	-0.263 (0.242)	
children_home	-0.479* (0.265)	-0.538** (0.236)
higher_education	-0.750*** (0.266)	-0.644*** (0.223)
education_enrollment	-0.0666 (0.349)	
relative_income	0.204 (0.230)	0.405** (0.201)
work_experience	-0.0227 (0.0278)	
industry_experience	-0.0683*** (0.0225)	-0.0761*** (0.0179)
company_size	-0.0690	

VARIABLES	(1)	(2)
	All regressors	Model A
	(0.0854)	
financial_difficulty	-0.0252	
	(0.138)	
work_fulltime	0.0614	
	(0.340)	
unemployed_3months	1.314***	1.072***
	(0.245)	(0.210)
Constant	5.542***	4.661***
	(1.656)	(1.280)
Wald Chi ²	109.41	122.06
McFadden's R ²	0.2455	0.2275
Observations	553	655

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own computations.

Before drawing conclusions from the obtained model, the next step was model verification. Firstly the model was tested for joint significance of explanatory variables with the use of the Wald test. The test statistic Wald chi² (7) was equal to 122.06. The probability of obtaining this value, given that the null hypothesis of joint insignificance is true, is equal to 0.000 which allows to reject it in favour of an alternative hypothesis that at least one variable in our model is significant. Secondly, McFadden's is presented to show the improvement in fit over the intercept-only model which is due to the independent variables. In the Model A McFadden's $R^2 \approx 0.23$ which proves the increase in model fit as compared to the intercept-only model.

I continue with testing for specification error with the use of the Tukey-Pregibon link test.

Table 6. Tukey-Pregibon link test for Model A

Contract type	P> z
_hat	0.000
_hatsq	0.370
const	0.741

Source: Own computations.

The fact that variable *_hat* which consists of predicted values is significant whereas *_hatsq* denoting squared predicted values is not, means that meaningful predictors were chosen and the model is likely correctly specified

Additionally the model is tested for multicollinearity by checking the VIF values corresponding to each variable.

Table 7. VIF analysis for Model A

VARIABLES	VIF
agea	62.75
age_squared	60.10
industry_experience	2.04
children_home	1.26
unemployed_3months	1.15
relative_income	1.13
higher_education	1.11

Source: Own computations.

VIF values that are greater than 10 are considered to indicate multicollinearity that significantly reduces the quality of a constructed model (Gruszczyński et al. 2009: 58). However values of VIF in models that simultaneously contain a linear and squared term of the same variable constitute a typical case where the collinearity exists.

After performing all the tests I proceed with interpretation of the results of the logistic regression. Generally the implications seem to be consistent with previous research. Starting from sociodemographic factors the conclusion is that age is a factor influencing the probability of being employed on the basis of a fixed term contract⁶. However its impact is not linear as both age and its squared value are significant. The odds-ratio equal to 0.75 ($e^{-0.28}$) for variable *age* and about 1.003 ($e^{0.003}$) for *age_squared* mean that the relationship between age and probability of being temporarily employed is of parabolic U-shape. As it is difficult to interpret this results with the use of odds-ratio only, Figure 4 is introduced in order to present predicted probabilities of having a fixed-term contract by age of a respondent.

⁶ In Chapter III this probability is always referred to as compared to probability of being permanently employed.

Figure 4. Predicted probabilities of having a fixed-term contract with quadratic fit plot by age of a respondent



Source: Own computations.

As it can be seen initially the predicted probability of having a fixed-term contract shrinks remarkably. It seems to confirm the hypothesis that young people face greater risk of working on the basis of the contracts of limited duration. Around the age of 30 this probability still decreases with every additional year, however, not so rapidly. According to the model workers in their prime age are most likely to have permanent contracts whereas when they approach their retirement age the probability of having a fixed-term contract appears to start to increase. However it is hard to estimate the magnitude of this increase on the basis of the presented graph as in the model only 9 observations are of age greater than 65. Given the results of previous studies in the area as well as the descriptive statistics about this kind of employment in Poland these findings do not seem to be surprising.

On the contrary, gender was not found to be statistically significant in explaining the risk of being temporarily employed. On the other hand regression coefficient for variable *children_home* is significantly different from 0 at standard significance level.

Interpretation of this result can be done with the use of odds ratio which are equal to approximately 0.58 ($e^{-0.54}$). People who live in a household with children are about 42% less likely to be in fixed-term instead of permanent employment as compared to those who do not have children at their households.

As far as education related categories are concerned, the conclusions that can be drawn from the model seem to be not so obvious. The fact that being enrolled in education did not significantly influence the type of contract might be a little unexpected. Some people who are learning find it convenient to work only occasionally, for example students undertake seasonal jobs (which are usually associated with fixed-term contracts) when they do not have to study. However the increasing probability of being temporarily employed while being in education was not proven. On the other hand, a relation between education level and the risk of being temporarily employed was found. Variable *higher_education* turns out to be significant at standard significance level. The odds ratio equal to 0.53 ($e^{-0.64}$) imply that people who have higher education degree are about 47% less likely to have a fixed-term contract instead of a permanent one when compared to those with lower level of education. Therefore it can be concluded that higher education is a step towards more desirable form of employment.

In addition to that, the results of the analysis prove at standard significance level the relationship between financial situation of a household and the type of contract held by its employed member. The more difficult it is for a respondent to live on current household's income, the greater the risk of being temporarily employed. This provides some support to the hypothesis stating that fixed-term employees earn less than permanent ones, but it doesn't prove it as the household's income rather than respondent's one was taken into account. Introducing a variable denoting respondents salary would provide more information about differences in payrolls in fixed-term and permanent employment, unfortunately respondents in the ESS 5 survey rarely wanted to answer questions concerning their personal income.

As for work related characteristics several conclusions can be drawn as well. The first two variables denoted the experience of an employee. The study investigated both the influence of every additional year spend in a given industry as well as in paid job as a whole. Out of these two variables only *industry_experience* is statically significant. The odds ratio equal to 0.93 ($e^{-0.08}$) imply that, holding everything else constant, one additional year spend in the kind of work that an individual currently performs, decreases the chances of having a fixed-term contract by 7%. However it is worth emphasising that this relation might partially come from the nature of temporary employment. Intuitively one could expect people with permanent contracts to be

working for longer periods in a given kind of industry than those who have only a fixed-term one.

The influence of the size of the company, understood as a number of people employed, was also investigated. As it was previously mentioned, a research by Baranowska & Gebel (2008) showed that in Poland employees working for smaller companies are more likely to be employed on the basis of fixed-term contracts. However, in the initial model the variable denoting the size was not statistically significant. The conclusions derived from the model do not confirm that the size of a company influences the probability of having a fixed-term contract.

Similar results can be drawn for the influence of a financial situation of a company. The models do not prove the differences between the financial condition of the respondent's company to be statistically significant. This finding might suggest that companies which suffer hardship do not employ more temporary workers as confronted to financially stable companies. Therefore the results do not provide enough evidence to support the hypothesis that growing number of fixed-term contracts in Poland is caused by worsening finances of the companies.

One of the goals of the study was also to check if the probability of having a fixed-term contract rises when an employee has less than 40 hours contracted which is a standard workweek in Poland. In order to do that a variable *work_fulltime* was introduced. However its regression coefficient turned out not be significantly different from zero which doesn't allow to reject the null hypothesis of its insignificance. Therefore on the basis of the analysis, it cannot be stated that in Poland fixed-term workers work less hours than permanent ones which is the case in some European countries (Salladarre & Hlaimi 2007).

The last variable of interest was *unemployed_3months* which was a dummy variable denoting whether in the previous 5 months a given person experienced a period of unemployment longer than 3 months. The results of the study indicate that not having a paid job for such a long period of time greatly increases the chances of being employed on the basis of a contract of limited duration. People who recently remained unemployed for 3 months are almost 3 times more likely to be employed on the basis of a fixed-term instead of permanent contract as the odds-ratio for that variable is equal to 2.91 ($e^{1.07}$).

The results of the analysis confirm the hypothesis that there are factors determining fixed-term employment of an individual. They seem to prove a significant non-linear relationship between age and probability of having this kind of contract. Other than that, socioeconomic characteristics such as education level, relative income of a household, living at home with children also affect these chances. As for work-related

characteristics the results confirmed the influence of experience in a given kind of job and in unemployment. However gender as well as establishment size, financial situation, work experience and contracted hours were not proven to be significantly determining individuals' risk of being in temporary employment.

3.2. Determinants of Temporary Employment Among Younger Individuals

After identifying the determinants of temporary employment, next step is to perform the similar analysis for the younger individuals in order to verify if these determinants differ when only the group of young people is to be considered. Therefore the following model (Model B) was created according to general-to-specific approach.

Table 8. Determinants of temporary employment for young people

VARIABLES	(1)	(2)	(3)
	Full set of regressors	Full set with linear age	Model B
agea	-1.076 (1.213)	-0.335*** (0.118)	-0.257*** (0.0615)
age_squared	0.0151 (0.0247)		
gender	-0.948** (0.433)	-0.947** (0.434)	-0.648* ^a (0.331)
children_home	-0.000971 (0.469)	0.0292 (0.473)	
higher_education	-0.146 (0.504)	-0.183 (0.503)	
education_enrollment	0.237 (0.539)	0.224 (0.533)	
relative_income	-0.586 (0.405)	-0.562 (0.395)	
work_experience	0.156 (0.119)	0.151 (0.120)	
industry_experience	-0.0331 (0.114)	-0.0216 (0.114)	
company_size	-0.0359 (0.154)	-0.0361 (0.153)	
financial_difficulty	0.0646 (0.240)	0.0685 (0.240)	
work_fulltime	-0.135	-0.128	

VARIABLES	(1)	(2)	(3)
	Full set of regressors	Full set with linear age	Model B
	(0.691)	(0.690)	
unemployed_3months	1.414***	1.407***	0.901***
	(0.438)	(0.440)	(0.342)
Constant	18.22	9.152***	6.747***
	(15.09)	(3.049)	(1.556)
Wald Chi ²	26.59	25.13	25.16
McFadden's R ²	0.1552	0.1536	0.1066
Observations	143	143	193

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

^a P-value for variable gender was equal 0.050.

Before drawing conclusions on the basis of the following results, once again the model is a subject to statistical validation.

The value of Wald test statistic allows to reject the null hypothesis of joint insignificance as the probability of obtaining such a value if that hypothesis was true, is about 0.000. McFadden's equal to 0.107 means that the model provides relatively poor improvement over the intercept-only model. What is more, just as in previous models, Tukey-Pregibon link test doesn't prove the existence of specification error.

Table 9. Tukey-Pregibon link test for Model B

Contract type	P> z
_hat	0.000
_hatsq	0.839
const	0.922

Source: Own computations.

This time the analysis of multicollinearity doesn't provide any rationale to state that interdependence of variables used in the construction of model could lead to significant reduction in its quality.

Table 10. VIF analysis for Model B

VARIABLES	VIF
agea	1.03
unemployed_3months	1.02
gender	1.01

Source: Own computations.

Starting the comparison from the influence of age, the logistic regression output seems to confirm what was found previously. The odds ratio for variable *agea* are equal to 0.77 ($e^{-0.26}$) and suggest that in an analysed age group, holding everything else constant, as a person gets older by one year the chances of being employed under a fixed-term instead of permanent contract decrease by as much as 23%. The negative relation between age and the probability of being in temporary employment was found to be true among young people in Model A as well, however, with a remark that the rate of this decrease was falling with every additional year. Thus it might be said that as far as the influence of age is concerned, the result obtained from the model with a sample restricted to young people supports the conclusions drawn from a general model.

On the other hand, gender was found to be statistically significant at 0.05 level which was not the case in the first model. With the odds ratio for the variable *gender* equal to about 0.52 ($e^{-0.65}$) it is estimated that among employees who are below 30 years old, men are *ceteris paribus* 48% less likely to have a fixed-term rather than permanent employment contract. However the influence of gender was not significant in the Model A which might suggest that men initially have greater chances of being permanently employed than women, but later on gender differences lose their significance in favour of other individual characteristics.

Surprisingly the hypothesis that the coefficient for variable *higher_education* is equal to 0 was not rejected. Therefore among young people those with higher education were not proven to have significantly different chances of having a fixed-term contract as compared to those with lower education level, even though it was found to be true in the model without age restricted sample. One of the possible explanations is that this result might have been obtained due to the fact that in the group of young people one can observe a relatively greater number of people who have a higher education degree. It might suggest that having this diploma alone is not such a distinguishing mark among young people and other factors, such as field of studies or additional competences that were not taken into consideration in this study, turn out to be more significant.

It was also not proven that young people living with children at home are more likely to have permanent employment as the p-value for the variable *children_home* exceeds standard significance level which was not the case in the Model A. Same for the relative income feelings, even though they were significant in explaining the probability of having a fixed-term contract in a model without age restricted sample, it is not the case in the Model B. It might be due to the fact that the question concerns

households income and young people often live with their parents who considerably contribute to the family budget.

However the fact that neither variable denoting work experience nor the one standing for experience in a given type of work turned out to be significant, is rather surprising as intuitively one could expect the experience to be important in explaining the risk of being temporarily employed which was the case in Model A.

The last variable *unemployed_3months*, denoting people who recently experienced a period of unemployment lasting more than 3 months, is significant in Model B at standard 0.05 significance level just as it was in the Model A. The odds ratio equal to 2.46 ($e^{0.9}$) suggest that those young people are almost two and a half times more likely to currently work under a contract of limited duration than those who weren't unemployed for such a long period. It seems to confirm the hypothesis presented by Sallard & Hlaimi (2007) that unemployment is a period of human capital dispersion as in both models employees who were unemployed for a longer period of time, face greater risk of having a generally less desired type of contract.

The results obtained by studying this model enable to compare the determinants of having a fixed term contract for employees of all ages with the ones for young employees only. Some factors that were statistically significant in explaining the probability of being temporarily employed in the general model, turned out not to be significant when the sample was restricted to young people only and the other way around. It suggests that determinants of temporary employment are different for young people, who relatively recently entered the labour market, than for employees regardless of their age. Therefore the results of the study provide rationale to state that some factors such as gender are initially significant in explaining the risk of having a generally less favoured contract type, but with time their influence fades away in favour of other characteristics such as education and experience in a given profession.

Conclusion

The primary objective the study was to identify the determinants of temporary employment in Poland and to verify whether those determinants change if I consider only the group of young people which is generally treated as mostly affected by temporary employment.

The study presents the legal regulations and descriptive statistics concerning this kind of contracts. It emphasises the lower level of protection legislation for temporary employees and the fact that Poland is a leader in the European Union when it comes to relative number of people working under this kind of agreement. Both positive and negative aspects of fixed-term contracts were presented from the perspective of employees, enterprises and the aggregate economy. The main conclusion from that comparison was that there might be both advantages and disadvantages depending on how they are used, however, some of the pros from enterprises' point of view might be considered as taken at the expense of employees. The study also presents the review of literature concerning the individual determinants of temporary employment both in Poland and in other countries.

As the study aims at identifying the determinants of temporary employment, econometric models were introduced to assess the impact of the selected sociodemographic and work-related characteristics. The results of the study prove that several of them significantly influence the probability of having a fixed-term contract. They indicate that age is a crucial factor determining the chances of being temporarily employed. Its influence was found to be non-linear. Workers in their prime age are more likely to have permanent contracts as compared to younger individuals whereas when they approach their retirement age the probability of having a temporary contract starts to increase. On the other hand people who are educated, live with children or are experienced in a given industry are less likely to have a fixed-term contract. What is more, the results of the study seem to confirm the hypothesis stating that people who experienced the relatively long period of unemployment are in a greater threat of having a generally less desired employment contract.

Finally another logistic regression model was created using exactly the same variables as in the first model, however reducing the sample to people younger than 30 years old. The most important conclusion from this part of the study is that for the young people factors which determine the chances of being temporarily employed aren't exactly the same as for all employees in general. Only age and experiencing a period of unemployment were proven to increase the probability of having a fixed-term contract both in general and for young people only. Moreover the results of the study suggest that initially gender differences influence that probability as well. In the group of young people men are more likely to be permanently employed. Hence I proposed that this might be interpreted as follows: some factors are only initially influencing the risk of working under a fixed-term contract but later they fade away in favour of the other determinants.

The importance of the study follows from the fact that temporary employment in Poland is the highest among all EU member states. Therefore identifying who is more likely to work under a contract of limited duration can be useful for the policy-makers as it might suggest to whom they should address campaigns and programmes aimed at improving employees' situation on the labour market. The results of the study indicate that individual characteristics do influence the probability of having a fixed-term contract and that these factors are different for young people who are generally mostly affected by the phenomenon of temporary employment.

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