Are temporary jobs stepping stones or dead ends? A systematic review of the literature

Mattia Filomena
Department of Economics and Social Sciences, Marche Polytechnic University, Ancona, Italy, and

Matteo Picchio
Department of Economics and Social Sciences, Marche Polytechnic University, Ancona, Italy;
Department of Economics, Ghent University, Ghent, Belgium;
IZA Institute of Labor Economics, Bonn, Germany and
GLO Global Labor Organization, Essen, Germany

Abstract

Purpose – This study aims to investigate the heterogeneous results about the impact of temporary jobs on subsequent labour market performances and to provide policymakers with further information on the effects of temporary contracts under particular circumstances.

Design/methodology/approach – The authors present a quantitative systematic review on the debate about the "stepping stone vs dead end" hypothesis related to the causal effect of temporary jobs on future labour market performances.

Findings – Among 78 observations from 64 articles, 32% support the hypothesis according to which temporary contracts are a port of entry into stable employment positions, 23% report ambiguous or mixed findings and the remaining 45% provide evidence in favour of the dead end hypothesis. The results from meta-regressions suggest that the stepping stone effect is more likely to emerge when self-selectivity issues are dealt with. The studies focussing on temporary work agency jobs and casual/seasonal jobs support more easily the dead end hypothesis. Finally, in more recent years and when the unemployment rate is larger, the dead end hypothesis is more likely to prevail.

Originality/value – Although many studies have been published on this issue, to the best of the authors' knowledge, there are no recent analytic economic surveys on the "stepping stone vs dead end" debate. The main contribution of this article is to fill this gap.

1. Introduction

In the last three decades, the labour market institutions of many Organisation for Economic Co-operation and Development (OECD) countries have changed substantially, with the rise of new forms of contracts, especially temporary forms of employment. In most cases, these reforms have left unchanged the employment protection of the standard open-ended contracts (OECD, 2004). Many studies have investigated the implications of these institutional changes both from the macroeconomic viewpoint and in terms of individuals' labour market prospects.

The macroeconomic literature has focused on the relationship between the employment protection legislation (EPL) index, calculated by the OECD and reflecting the degree of labour market flexibility, and aggregate employment and unemployment. Howell *et al.* (2007) report that most of the studies find no statistically significant relationship between these variables. The reviews in Boeri and Van Ours (2013) and Skedinger (2010) provide inconclusive results. Brancaccio *et al.* (2020) conducted the first meta-analysis about these relationships, using 53 articles published between 1990 and 2019: 28% of the studies find that the labour market deregulation increases employment and reduces unemployment; the remaining articles report either ambiguous results (21%) or a negative impact on labour market outcomes (51%).

From the point of view of employment prospects at individual level, many authors have provided evidence on the so-called "stepping stone vs dead end" debate, by estimating at individual level the effect of experiencing temporary or atypical jobs on the subsequent career in terms of employment satisfaction, job stability and earnings. Although many studies have been published on this issue, to the best of our knowledge, there is no analytical economic survey on the "stepping stone vs dead end" debate. Only de Graaf-Zijl (2005) offered an overview on the literature dealing with the economic and social consequences of precarious job positions. However, the mid of the 2000s was still the onset of the literature on the stepping stone effect, and many articles and new findings have been published since the review in de Graaf-Zijl (2005). The main contribution of our article is to fill this gap and provide a comprehensive review of the results obtained so far on the impact of temporary jobs on future labour market performances at individual level.

The empirical literature does not provide clear-cut findings on the debate around temporary employment and its consequences on individuals' subsequent labour market outcomes. Some studies support the stepping stone hypothesis (e.g. Addison and Surfield, 2009; Ichino *et al.*, 2008; Picchio, 2008; Cockx and Picchio, 2012), others find that temporary jobs are a trap, rather than a bridge to open-ended contracts (e.g. Alba-Ramirez, 1998; Amuedo-Dorantes, 2000; Garcia-Pérez *et al.*, 2019). Moreover, there are also ambiguous or controversial pieces of evidence, either because temporary positions are found to have an insignificant effect (e.g. Barbieri and Cutuli, 2016; Esteban-Pretel *et al.*, 2011) or because temporary jobs are found to be stepping stones towards stable positions but generating lower wages in the future (e.g. Booth *et al.*, 2002; Addison *et al.*, 2015). Finally, there are studies reporting evidence that could be in favour of the stepping stone hypothesis, but only if the worker does not experience repeated flexible contracts or job interruptions (Gagliarducci, 2005; Rebollo Sanz, 2011). In light of these conflicting and different findings, a second contribution of our analysis is to quantitatively combine evidence from different studies on a similar theme by way of meta-probit analysis techniques. We present a systematic

quantitative review to understand the heterogeneous results about the impact of temporary jobs on subsequent labour market performances and to provide policymakers with further information on the effects of temporary contracts under particular circumstances. Our analysis is based on a sample of 64 articles published in international peer-reviewed journals and follows a meta-analytical approach similar to the one in Kluve (2010).

This paper is organized as follows. Section 2 provides a theoretical background about the "stepping stone vs dead end" debate. Section 3 describes the selection criteria to generate the meta-analytic sample. Section 4 reports descriptive statistics and shows how different characteristics of the studies correlate to the research outcomes. Section 5 reports and comments on the meta-regression results. Section 6 concludes.

2. Theoretical background

The stepping stone vs dead end debate emerges from ambiguous predictions provided by the economic theory. On the one hand, according to the stepping stone hypothesis, temporary jobs may be of help in obtaining more stable and better positions, especially for those belonging to disadvantaged groups, who otherwise would have been excluded from the labour market by too strict regulations. The main channels are the accumulation of work experience and human capital, the access to social networks, the signalling of high motivation (Loh, 1994; Wang and Weiss, 1998), and the accumulation of financial assets to sponsor a longer and better job search in the eventual subsequent unemployment spell (Browning *et al.*, 2007).

On the other hand, employers might use temporary contracts as a mere flexibility buffer. If so, temporary workers could have low chances of getting the conversion to a stable position, have a discontinued career made up of a repetition of short-term and low paid jobs. Furthermore, since temporary workers are more likely to leave the firm sooner and employers' incentives to invest in training are negatively related to the probability of job mismatch (Acemoglu and Pischke, 1998), they will be less likely to receive firm-sponsored training and will have a smaller incentive to investing in their own human capital (Arulampalam and Booth, 1998; Albert *et al.*, 2005; Fouarge *et al.*, 2012). As a matter of fact, Blanchard and Landier (2002) concluded that labour market reforms in France have substantially increased turnover in fixed-term jobs, without a reduction in unemployment duration or a positive impact on welfare of young workers.

To complicate theoretical predictions, it should be considered that other factors could play a relevant role by interacting with temporary employment, among which are labour market institutions. As pointed out by Casquel and Cunyat (2008), firms decide to keep a worker in a permanent job only if the surplus generated under a permanent contract is greater than the firing costs. However, what determines whether the stepping stone effect dominates or not is the value of productivity exceeding a threshold productivity value, which depends also on the institutional labour market regulation. An increase in the unemployment benefits, in the firing costs, or in the set-up costs determines a higher threshold value. Moreover, when the firing costs of permanent workers are large, temporary jobs could be more intensively used as a screening device, rather than a buffer to face the business cycle, because firms give a larger importance to the assessment of the quality of workers before signing an open-ended contract. At the same time, large firing costs for permanent workers could exacerbate the use of temporary position as a flexibility buffer (Cockx and Picchio, 2012; Tejada, 2017) to face product demand volatility, giving rise to a duality in the labour market, with the secondary market based on short-term relationships and populated by the most disadvantaged groups, like the youth or women.

Finally, the effect of temporary jobs can be different because of the interactions with other contract types, for example, with those involving firm-provided training, such as the

apprenticeship. When these types of contracts are available and favoured by the regulations (e.g. reduction in employers' labour costs), firms could prefer to use them to induce self-selection of more able workers and facilitates worker screening (Autor, 2001; Picchio and Staffolani, 2019), instead of using fixed-term contracts, hence becoming more likely to be relegated to the function of a buffer to face cyclical downturns.

3. Meta-analytic sample selection criteria

The empirical literature does not show clear-cut results on the stepping stone hypothesis for temporary jobs. Several reasons could explain the different findings, such as different samples, identification strategies and methodological tools. Moreover, as explained in Section 2, an important role is theoretically played by different labour market institutions across countries. Hence, a simple comparison of the different studies and results could be misleading. A meta-analysis can avoid such problems.

We defined a set of conditions which studies had to meet in order to include in our meta-sample. First, to reduce the probability that the selected studies are of low quality and report mistaken results, we decided to focus only on articles published in peer-reviewed journals dealing with labour, economics and sociology and with the SCImago Journal Rank (SJR) indicator [1]. Second, we decided to disregard theoretical works, macroeconomic analyses, studies focussing on EPL, empirical analyses drawing their conclusions on the effects of temporary jobs on outcomes we are not interested in or considering labour market reforms and EPL dynamics. The aim of these studies is indeed different from our research purpose, which only focuses on microeconomic analyses that tried to understand if accepting a temporary contract is a port of entry into stable employment positions. Lastly, we chose to include studies independently on the identification strategy of the causal effect: one of the objectives of our meta-analysis is indeed to investigate if the identification/estimation strategy is a key factor in explaining different findings.

Our search selection process started, in a first step, by searching articles in the Web of Science database in the first week of March 2021. We used the following two combinations of keywords: "temporary job" and "stepping stone" (81 results); "temporary job" and "dead end" (13 results). After removing duplicates and disregarding those studies not in line with the aforementioned selection criteria, we were left with 28 articles. In a second step, after reading the references of those 28 articles, we identified further 36 articles satisfying the inclusion criteria mentioned in the previous paragraph.

Our search returned therefore a final sample of 64 articles. They are listed in the Online Appendix, where we provide study-related characteristics and a brief description of the research design of the studies. However, since a given article could evaluate more than a type of temporary contract, it might give two or more data points. In this way, our sample reaches 78 observations, belonging to the 64 studies analysed. As regard the classification procedure of the research outcomes, we assign to each study, on the basis of the results that are statistically significant and authors' interpretation of their findings, one of the following three outcomes: (1) works with empirical evidence in favour of the stepping stone hypothesis; (2) articles supporting the dead end hypothesis; (3) articles providing mixed, controversial or no significant effects [2].

The distribution of this outcome variable taking three discrete values is as follows: 25 (32%) results support the stepping stone hypothesis, 35 (45%) observations support the dead end hypothesis, suggesting the entrapment or scarring effect of temporary jobs, and 18 (23%) findings provide mixed or controversial evidence. This descriptive picture would not change if we counted studies not published in refereed journals, articles published in journals without the SJR indicator, working papers and book chapters: 3 studies consider temporary jobs as a port of entry into permanent employment (e.g. Andersson et al., 2009), 6 papers support the

entrapment effect into unemployment or recursive temporary jobs (e.g. Autor and Houseman, 2006; Dekker, 2008), and 6 papers report mixed results (e.g. Verhofstadt and Goebel, 2008; Kvasnicka, 2009). If we added the related 21 findings to the previous list of 78 observations, we would have 29% of the manuscripts supporting the stepping stone hypothesis, 47% in favour of the dead end and 24% with mixed or controversial findings.

4. Univariate analysis

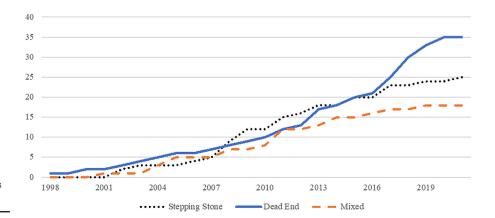## 4.1 Study outcome by journal and publication features

We provide in this section some basic descriptive statistics of the articles in our sample by research findings. We focus first on characteristics like the year of publication, the journal subject area, the number of citations on average per year and the journal SJR indicator at the time of publication.

To understand the relation between year of publication, which is a kind of (rough) approximation of the time period analysed in each article, and articles findings, we report in Table 1 the distribution of the absolute frequencies by decades and research outcomes. We also plot in Figure 1 the cumulative absolute frequency over publication years by research outcomes. Table 1 shows that the observations supporting the stepping stone hypothesis are equally divided between the last two decades. Instead, in the past decade, the number of articles providing evidence for the entrapment effect or mixed/controversial results has more than doubled. Figure 1 visually clarifies that while the stepping stone and the mixed curves tend to become flatter in the last decade, the profiles of the cumulative distribution for the dead end hypothesis becomes steeper, especially in the last 4 years. Although the numerous labour market reforms reducing the EPL of permanent jobs after the onset of the Great Recession [3], which decreased therefore the relative benefit of using temporary jobs as a buffer, the evidence for the dead end hypothesis has become prevalent at the time of writing.

	Stepping stone	Dead end	Mixed/controversial	Total
1990–1999	0	1	0	1
2000–2009	12	8	7	27
2010–2020[a]	13	26	11	50

Table 1.
Summary statistics on research outcomes over time

Note(s): [a]In this time frame we also include the first two months of 2021

Figure 1.
Cumulative absolute frequency over years by research outcome

It might be that more unstable and stagnant economic conditions, as those that followed the Great Recession, largely favoured the use of temporary jobs as a buffer, more than compensating the opposite effect induced by the concomitant reduction in the EPL for permanent workers.

Table A2 in the Online Appendix reports the average number of citations per year according to Google Scholar (retrieved on 08/03/2021) and the SJR indicator at the time of publication by research outcome. It is noteworthy that articles providing mixed or controversial results are not underrepresented in journals of high prestige and scientific influence compared to those with more clear-cut findings.

4.2 Study outcome by research design
When investigating the impact of temporary jobs on subsequent labour market performances at individual level, analysts typically compare the careers of workers who experienced a temporary job, or repeated temporary positions, to the career of control units who were either not employed or had an open-ended job. In this framework, researchers are especially far away from randomization, the gold standard for causal inference. When contrasting labour market outcomes of temporary workers to those of other individuals, researchers face indeed the usual crux in an evaluation framework, i.e. the lack of the random assignment to the treatment and to the control groups: there might be confounding variables that are able to determine both the labour market outcomes of interest (e.g. probability of having a stable job or earnings in some years) and the probability of being in a particular labour market state (e.g. non-employed, temporary job or open-ended contract) when observed. Different approaches have been used to solve the endogenous selection into the labour market status and claim identification of the causal effect of having a temporary job on future labour market outcomes. The different identification strategies used in the studies in our sample are extensively described in the Online Appendix 1, where Figure A1 displays the absolute frequency of observations by research outcome and by the methodology used for the identification of the causal effect. The stepping stone hypothesis is prevalent in only one of the applied methods: Timing-of-Events (ToE). The dead end hypothesis is instead by far the most common result in articles not well equipped in terms of identification strategy of the causal effect: out of 35 observations finding that temporary jobs are dead ends, 17 are from articles performing a simple multivariate analysis controlling only for a reduced number of regressors. If we removed from our sample articles not dealing properly with the self-selection into temporary positions, articles supporting the stepping stone hypothesis would become the most numerous: 40% against 37% of studies in favour of the dead end hypothesis and 23% providing mixed or controversial results.

4.3 Study outcome by countries, institutional context and macroeconomic conditions
Figure A4 displays the absolute frequency of studies by countries and research outcome. An explanation for the heterogeneous distribution of the research outcomes across countries could be provided by different labour market institutions. Institutional labour market regulations are indeed likely to be important in explaining the role of temporary jobs in the economy. In countries where permanent workers are very protected and their firing costs are high, temporary jobs could represent a port of entry for the most disadvantaged categories of workers such as women, the youth and the long-term unemployed, who otherwise would not have the opportunity to prove their productivity. However, at the same time, the stricter the EPL for permanent workers, the more employers use temporary contracts as a buffer to face the business cycle, and temporary jobs are more likely to be dead ends. Following Bentolila *et al.* (2019), employers' decisions heavily depend on firing costs and this favours dead end outcomes, in particular, the larger the EPL gap between contract types: the higher the EPL

gap, the larger the benefits of hiring using temporary contracts and the lower their conversion rate into permanent jobs.

Table A3 reports descriptive statistics of the EPL index of permanent employment, the EPL gap between temporary and permanent contracts, the unemployment rates, and the gross domestic product (GDP) growth rate by research outcome. These aggregate measures refer to the country studied in each article and to the year (or the midpoint of the time window) of the dataset used for the empirical analysis. The EPL for permanent contracts is stricter in those countries where the research findings are in favour of the dead end hypothesis. However, when the gap between the EPL of permanent jobs and the EPL of temporary jobs is larger, the stepping stone hypothesis is more likely to be supported. In line with theoretical arguments, the stepping stone hypothesis is more likely to emerge when the state of the economy and of the labour market is more favourable, i.e. when the GDP growth rate is larger and the unemployment rate is lower.

4.4 Heterogeneity among different types of temporary jobs

Most of the articles in our sample analysed a single type of temporary contract, whereas 8 out of 64 reported results and conclusions on multiple contractual arrangements and therefore providing multiple data points. Here, we investigate even whether and how the study outcome is associated to the type of temporary contract [4]. More in detail, we group temporary jobs in five categories. Figure A5 illustrates the research outcomes among these 5 categories. First, 26 selected articles study the effect of temporary jobs without being specific in defining the contractual forms analysed. We assign these studies to the generic category "Temporary jobs". The stepping stone outcome slightly prevails in this category with 10 articles supporting it. Second, 10 articles analysed temporary help agencies (THA) jobs, and the dead end effect is the most likely research outcome, while 17 studies focus on fixed-term contracts (FTCs) and, also in this case, the dead end effect is the most likely outcome. A further category includes seasonal contracts and all atypical contracts that are contingent, casual or marginal, typically with limited job security and part-time. Again, the prevailing outcome is the dead end effect. Finally, a residual category captures all the other contractual forms, such as "parasubordinate" workers [5], on-call jobs, subsidized temporary contracts, project works, summer works, short-lived jobs and single quarter jobs. In this case, the two opposite hypotheses are equally supported by the empirical evidence.

5. Meta-probit regression

5.1 Method

The outcome variable of our model is given by the hypothesis supported by each evaluation study and categorized in three ordered values: −1 when the study result supports the dead end hypothesis; 0 for null, mixed or controversial results; 1 when the research outcome is in favour of the stepping stone hypothesis. For this reason, our meta-analysis uses an ordered response model following the same approach as the one in other meta-analysis concerning evaluation effects in the labour market (e.g. Card *et al.*, 2010, 2017; Kluve, 2010) [6].

Although we are aware that a meta-analysis should consider the effect size and the standard error of each study to provide solid evidence on eventual publication bias and on the genuine effect, we cannot have a finer approach for several reasons. First, the labour market outcomes used as dependent variables are very different across studies, going from the probability of having a stable job in different years in the future, to hazard rates towards permanent positions, to the probability of starting a job that lasts long enough, to earnings. Second, different identification strategies using different counterfactuals are used. For

example, in some studies, the stepping stone hypothesis is investigated by comparing the future labour market outcomes of individuals who had a temporary job with those of individuals who had in the same moment a permanent position. In other articles, the same comparison is carried out between temporary workers and the unemployed (or not employed). Third, some studies focus on specific types of temporary employment, like temporary work agency jobs or fixed-term jobs, some other studies distinguish between various forms of temporary employment, and some others build their conclusions on eventual repetitions of temporary jobs (e.g. Gagliarducci, 2005; Rebollo Sanz, 2011) or on simulations after the estimation of flexible models for labour market durations and transitions (Cockx and Picchio, 2012). Finally, while some studies focused on a single outcome variable, others based their conclusions on more than one outcome, for example, on both subsequent employment stability and earnings.

For these reasons, we cannot follow the MAER-NET guidelines (Havránek *et al.*, 2020). As an alternative strategy, we changed the focus of the meta-analysis away from an analysis on the effect size to whether a certain effect was found (Stanley and Doucouliagos, 2012). Hence, we opt for an ordered response outcome variable taking on three values and perform a meta-probit analysis to explore the study characteristics that lead to certain results (see, e.g. Card *et al.*, 2010; Kluve, 2010). This approach, although limited, is still informative in conducting a quantitative analysis on a very heterogeneous sample of articles, such as in our framework and, more in general, when it is particularly difficult to identify the main impact estimate or a standardized measure for the effect size.

A further consequent limit of our meta-analysis is the inability to seriously analyse the issue of publication bias, i.e. the bias stemming from the tendency of editors to publish more easily results consistent with a conventional view (Card and Krueger, 1995). This type of bias is usually investigated through a funnel plot, a scatter diagram of precision vs non-standardized effect using the inverse of the standard error as a precision measure, or through a funnel asymmetry test (Stanley, 2005).

Since the outcome is an ordered response variable, we model the probability that each study i is assigned to one of the three categories as a function of a set of covariates using the ordered probit specification [7]:

$$P(y_i = -1|\mathbf{x}_i) \equiv p_{-1}(\mathbf{x}_i) = \Phi(\alpha_0 - \mathbf{x}_i\beta),$$
$$P(y_i = 0|\mathbf{x}_i) \equiv p_0(\mathbf{x}_i) = \Phi(\alpha_1 - \mathbf{x}_i\beta) - \Phi(\alpha_0 - \mathbf{x}_i\beta),$$
$$P(y_i = 1|\mathbf{x}_i) \equiv p_1(\mathbf{x}_i) = 1 - \Phi(\alpha_1 - \mathbf{x}_i\beta), \quad (1)$$

where α_0 and α_1 are cut points, $\mathbf{x}_i$ is a set of covariates, and β the conformable vector of parameters.

Among the covariates, we include dummy variables for the subject area, the year of publication, the sample size, the identification strategy, the geographical area and the different forms of temporary contracts. For each characteristic, these dummies reflect the categories as presented in Section 4 and extensively discussed in the Online Appendix. Moreover, we use the SJR indicator at the time of publication and the average number of Google Scholar citations per year as a proxy for the quality and scientific credibility of the study result.

The order probit model is estimated by maximum likelihood. Then, to quantify the correlation between the covariates and the response probabilities, we use the estimated parameters to calculate the average marginal effects of the different regressors on $p_{-1}(\mathbf{x}_i)$ and $p_1(\mathbf{x}_i)$, i.e. on the probability that a study finds support for the dead end hypothesis or the stepping stone hypothesis, respectively. By doing so, we can quantify the impact of each characteristics by keeping fixed all the remaining ones.

5.2 Main results

Table 2 displays the average partial effects of each regressor on the probability that a study finds support for the dead end hypothesis (APE_{-1}) and reports evidence in favour of the stepping stone hypothesis (APE_1).

The results in specification 1 of Table 2 indicate that the quality of the publication as measured by the number of citations per year is strongly associated to the study outcome: articles providing evidence supporting the stepping stone hypothesis received more citations. The coefficient of the SJR index is instead not significant.

The year of publication matters. We control for year of publication after grouping it in 3 categories. We find that articles published more recently are less likely to find results supporting the stepping stone hypothesis. We also observed this in the univariate analysis in Section 4. It could be because more unstable and stagnant economic conditions, as those which followed the Great Recession, largely favoured the use of temporary employment as a buffer.

The subject area of the journal is strongly associated to the study outcome. Articles published in multi-area journals are more likely to report evidence in favour of the stepping stone hypothesis and less likely to find that temporary jobs are dead ends.

Studies with larger sample sizes and focussing on extra-EU countries are more likely to find evidence for the stepping stone hypothesis.

Compared to studies with a general focus on temporary employment, we find that jobs for Temporary Help Agencies (THA) and causal/seasonal jobs are the most likely to be dead ends, with similar magnitudes across all the specifications.

Finally, we find that articles dealing with the endogeneity of the temporary job treatment on the basis of either the selection on observables or the selection on unobservables are much more likely to have research outcomes in favour of the stepping stone hypothesis than those articles that do not tackle self-selectivity issues. In model 2, we shed more light on the methodological aspect and provide a richer specification to describe better the identification strategy. We realize that those studies using the ToE approach, and therefore exploiting the extra information provided by the timing with which the selection into treatment and the transition to the outcome state occur, are the most likely to find the stepping stone effect. They are followed by the control function, PSM and DiD approaches.

Finally, in specification 3, we include four extra regressors capturing the labour market regulations (the EPL for open-ended contracts and the EPL gap between permanent and temporary jobs), the state of the labour market (unemployment rate), and the business cycle (GDP growth rate). We lose 12 observations (out of 78), because 10 articles are multi-country studies. In this specification, the coefficient of the citations per year becomes insignificant, suggesting that the quality of the journals and the citations received by the articles are homogeneous across the study outcomes. This is in line with descriptive statistics provided in Table A2, where we also distinguish between single-country and multi-country studies. Thus, we speculate that this might indicate that there is no publication bias. The same happens for the coefficient of the continental dummy "Extra EU". The remaining results reasonably match those of the baseline model. Further, we find that the variables for the EPL for permanent workers and the EPL gap do not correlate to the study outcome. The sign of the coefficient suggests that a higher EPL for open-ended contracts may induce employers to use temporary contracts as a buffer. The status of the labour market, as measured by the unemployment rate, is correlated to the study outcome, rather than to the GDP growth rate: the larger the unemployment rate, the lower (larger) the probability that the stepping stone (dead end) effect is the study outcome. This suggests that temporary jobs are more likely to be used as a buffer to face the volatility of the demand of the final product when the economy is in a downturn and that the level of labour market deregulation, as measured by the EPL indexes, plays instead a limited role. This is in line with the findings in Brancaccio *et al.* (2020)

Table 2. Average marginal effects from ordered probit model regressions

	(1) $\frac{\partial\ P(y=-1|x)}{\partial\ x_j}$ APE_{-1}	Std. err.	(1) $\frac{\partial\ P(y=1|x)}{\partial\ x_j}$ APE_1	Std. err.	(2) $\frac{\partial\ P(y=-1|x)}{\partial\ x_j}$ APE_{-1}	Std. err.	(2) $\frac{\partial\ P(y=1|x)}{\partial\ x_j}$ APE_1	Std. err.	(3) $\frac{\partial\ P(y=-1|x)}{\partial\ x_j}$ APE_{-1}	Std. err.	(3) $\frac{\partial\ P(y=1|x)}{\partial\ x_j}$ APE_1	Std. err.
Google Scholar citations per year	−0.010[***]	0.003	0.009[***]	0.003	−0.011[***]	0.003	0.010[***]	0.003	−0.004	0.003	0.004	0.003
SJR index	0.076	0.056	−0.070	0.053	0.071	0.057	−0.062	0.052	0.016	0.061	−0.015	0.058
Year of publication – reference: 2015–2021												
1999–2009	−0.184[*]	0.096	0.180[*]	0.096	−0.066	0.112	0.059[*]	0.103	−0.222[**]	0.105	0.237[*]	0.120
2010–2014	−0.228[***]	0.084	0.224[**]	0.090	−0.178[*]	0.095	0.159[*]	0.091	−0.258[***]	0.083	0.240[***]	0.080
Subject area – reference: multi-area												
Economics, Econometrics and Finance	0.304[***]	0.075	−0.251[***]	0.058	0.368[***]	0.069	−0.282[***]	0.053	0.372[***]	0.065	−0.302[***]	0.050
Social sciences	0.032	0.123	−0.029	0.109	0.047	0.120	−0.040	0.099	0.206	0.149	−0.171	0.106
Business, Management and Accounting	0.421[***]	0.105	−0.305[***]	0.064	0.360[***]	0.108	−0.264[***]	0.069	0.362[***]	0.107	−0.287[***]	0.078
Sample size: reference: N < 1,000												
1,000 ≤ N < 10,000	−0.305[**]	0.148	0.300[*]	0.159	−0.403[***]	0.130	0.389[***]	0.144	−0.390[***]	0.115	0.429[**]	0.149
N ≥ 10,000	−0.308[***]	0.106	0.280[***]	0.100	−0.355[***]	0.087	0.329[***]	0.086	−0.329[***]	0.094	0.272[**]	0.079
Continental dummies – reference: UE												
Extra EU	−0.342[***]	0.091	0.378[***]	0.123	−0.405[***]	0.078	0.441[***]	0.100	0.137	0.215	−0.117	0.164
Multi country	0.156	0.104	−0.136	0.085	0.102	0.116	−0.086	0.094	–	–	–	–
Identification strategy – reference: multivariate analysis with reduced number of controls												
Selection on observables	−0.316[***]	0.076	0.344[***]	0.092	–	–	–	–	−0.303[***]	0.064	0.370[***]	0.088
Selection on unobservables	−0.383[***]	0.076	0.386[***]	0.088	–	–	–	–	−0.360[***]	0.092	0.336[***]	0.099
Identification strategy – reference: multivariate analysis with reduced number of controls												
Control function	–	–	–	–	−0.366[**]	0.099	0.427[***]	0.147	–	–	–	–
Propensity score matching	–	–	–	–	−0.353[***]	0.073	0.397[***]	0.100	–	–	–	–

(continued)

Table 2.

	(1)				(2)				(3)			
	$\frac{\partial\,P(y=-1\|x)}{\partial\,x_j}$ APE_{-1}	Std. err.	$\frac{\partial\,P(y=1\|x)}{\partial\,x_j}$ APE_1	Std. err.	$\frac{\partial\,P(y=-1\|x)}{\partial\,x_j}$ APE_{-1}	Std. err.	$\frac{\partial\,P(y=1\|x)}{\partial\,x_j}$ APE_1	Std. err.	$\frac{\partial\,P(y=-1\|x)}{\partial\,x_j}$ APE_{-1}	Std. err.	$\frac{\partial\,P(y=1\|x)}{\partial\,x_j}$ APE_1	Std. err.
DiD-FE	–	–	–	–	−0.334***	0.080	0.364***	0.112	–	–	–	–
ToE	–	–	–	–	−0.476***	0.066	0.606***	0.107	–	–	–	–
Dynamic random effects probit	–	–	–	–	−0.168	0.189	0.163	0.210	–	–	–	–
Other methods, including RDD and IV	–	–	–	–	−0.196	0.188	0.196	0.221	–	–	–	–
Institutional context and macroeconomic conditions												
EPL for permanent workers	–	–	–	–	–	–	–	–	0.202*	0.112	−0.190*	0.101
EPL gap permanent/temporary workers	–	–	–	–	–	–	–	–	−0.026	0.050	0.024	0.047
Unemployment rate	–	–	–	–	–	–	–	–	0.030**	0.013	−0.028**	0.013
GDP growth rate	–	–	–	–	–	–	–	–	−0.062*	0.033	0.058*	0.032
Contract type – reference: temporary jobs												
Fixed-term contracts	0.051	0.102	−0.046	0.090	−0.011	0.109	0.010	0.095	0.045	0.134	−0.041	0.118
Temporary Help Agencies	0.406***	0.110	−0.301***	0.068	0.396***	0.107	−0.293***	0.071	0.413***	0.094	−0.319***	0.070
Casual/Seasonal jobs	0.409***	0.092	−0.302***	0.064	0.389***	0.093	−0.290***	0.063	0.320***	0.110	−0.264***	0.083
Other atypical contracts	0.002	0.097	−0.002	0.088	0.025	0.095	−0.022	0.081	−0.069	0.112	0.066	0.112
Observations (studies)	78 (64)		78 (64)		78 (64)		78 (64)		66 (54)		66 (54)	

Note(s): ***, **, *: significant at 1%, significant at 5%, significant at 10%. The outcome variable is an ordered response variable indicating whether a study supports the dead end hypothesis (−1), finds mixed or null results (0), or finds evidence in favour of the stepping stone hypothesis (1). The average marginal effect of a continuous variable is estimated as the sample mean of the first partial derivative of the response probability of interest with respect to the continuous regressor, evaluated at the estimated parameters. The average marginal effect of a dummy indicator is estimated as the sample mean of the difference between the response probabilities of interest for the dummy being equal to one and the dummy equal to 0 (and evaluated at the estimated parameters). The standard errors are clustered at study level

who, in a meta-analysis on the macroeconomic impact of the labour market deregulation on employment and unemployment, found that the effect of the EPL index on employment and unemployment is on average nil.

6. Conclusions

This article presented a meta-analytical approach to the "stepping stone vs dead end" debate concerning the effects of temporary jobs on subsequent labour market performances. To the best of our knowledge, this article is the first attempt to systematically and quantitatively summarize the empirical findings on this issue. We searched and collected 64 articles published on peer-review journals, which provide an amount of 78 observations. Among these findings, 32% supported the hypothesis according to which temporary contracts are a port of entry into stable jobs, 23% reported mixed or no effects and the remaining 45% provided evidence in favour of the dead end effect.

We analysed how the study outcome is correlated to different study-related characteristics, the labour market regulation, the state of the labour market and the business cycle. The meta-regressions suggested that the probability that the study outcome finds support for the stepping stone (dead end) hypothesis is larger (smaller) when the identification strategy of the causal effect of temporary employment relies on both selection on observables and unobservables, especially on the ToE approach. By analysing whether the type of temporary contract matters, we found that THA jobs and casual/seasonal jobs are strongly associated with a higher (lower) probability of identifying a result in favour of the dead end (stepping stone) hypothesis.

Finally, we detected that the strictness of the EPL for permanent workers and its gap from the one for temporary workers are not associated to the study outcome. This evidence is in line with the results in the meta-analysis in Brancaccio *et al.* (2020), who found that labour market deregulation is not associated to better macroeconomic employment performances. Instead, our analysis revealed that the unemployment rate plays a relevant role. A similar finding comes from the GDP growth rate, although with lower statistical significance. These results suggest that the stepping stone (dead end) effect is less (more) likely in difficult times.

For these reasons, the policymaker interested in preventing career interruptions and increasing employment stability should pay special attention to the business cycle and to the use of particular temporary contracts. Especially during bad economic times, policy interventions should aim at discouraging the use of casual/seasonal employment and at providing legal mechanisms to induce THAs to improve their matching ability toward open-ended positions and at stimulating employers to convert temporary contracts into permanent ones.

Notes

1. See www.scimagojr.com/SCImagoJournalRank.pdf for details on the calculation of the SJR. As a sensitivity check, we also estimated the meta-regression model by including those papers not published in peer-reviewed journals or not ranked in SCImago. These results are reported in Online Appendix 2, Table A7.

2. By "controversial" we mean studies: (1) supporting neither the stepping stone nor the dead end hypothesis; (2) highlighting scars in terms of lower subsequent wages; (3) supporting the stepping stone hypothesis, but only if there are no repeated temporary contracts or interruptions. By "mixed" we mean, for instance, very heterogeneous findings across sub-populations.

3. Adascalitei and Pignatti Morano (2016) count at least 642 changes in 110 developed and developing countries between 2008 and 2014. The majority of these interventions were implemented in the area of regular contracts and in the regulation of collective bargaining towards a reduction of the existing level of regulation.

4. Further heterogeneity dimensions that could be interesting to investigate are those related to the probability of individuals to belong to disadvantaged groups, for example, gender, labour market experience, education, age or blue vs white collar workers. However, the studies in our sample rarely report separate estimates for these different groups of workers or, if they do, the results do not differ across the distinguished categories. For instance, although about 20 studies report separate estimates for men and women, the effect of temporary jobs on future job stability is similar for men and women and only in few cases the conclusions are different.

5. "Parasubordinate" workers are officially self-employed workers, but *de facto* are employees, much used in Italy in the 2000s and 2010s.

6. Since in the middle category we have both results finding no significant effect of temporary jobs but also those reporting mixed or controversial findings, one may wonder if the ordered categorization may be arbitrary. To check if our results are robust to the used ordered categorization, we also estimated two probit models which differed for the definition of the binary outcome variable. In one case, the dependent variable was equal to 1 if a study result is in favour of the stepping stone hypothesis and 0 otherwise. In the other case, the dependent variable was equal to 1 if a study result supports the dead end hypothesis and 0 otherwise. A similar approach to test the implicit restrictions of the ordered probit model was used by Card *et al.* (2010). Results are discussed in Online Appendix 2 and displayed in Table A5.

7. We also estimated an ordered logit model. Results are very similar to the benchmark ones and displayed in Online Appendix 2, Table A6.

References

Acemoglu, D. and Pischke, J.S. (1998), "Why do firms train? Theory and evidence", *The Quarterly Journal of Economics*, Vol. 113 No. 1, pp. 79-119.

Adascalitei, D. and Pignatti Morano, C. (2016), "Drivers and effects of labour market reforms: evidence from a novel policy compendium", *IZA Journal of Labor Policy*, Vol. 5 No. 1, pp. 1-32.

Addison, J.T. and Surfield, C.J. (2009), "Does atypical work help the jobless? Evidence from a CAEAS/CPS cohort analysis", *Applied Economics*, Vol. 41 No. 9, pp. 1077-1087.

Addison, J.T., Cotti, C.D. and Surfield, C.J. (2015), "Atypical jobs: stepping stones or dead ends? Evidence from the NLSY 79", *The Manchester School*, Vol. 83 No. 1, pp. 17-55.

Alba-Ramirez, A. (1998), "How temporary is temporary employment in Spain?", *Journal of Labor Research*, Vol. 19 No. 4, pp. 695-710.

Albert, C., García-Serrano, C. and Hernanz, V. (2005), "Firm-provided training and temporary contracts", *Spanish Economic Review*, Vol. 7, pp. 67-88.

Amuedo-Dorantes, C. (2000), "Work transitions into and out of involuntary temporary employment in a segmented market: evidence from Spain", *ILR Review*, Vol. 53 No. 2, pp. 309-325.

Andersson, F., Holzer, H.J. and Lane, J. (2009), "Temporary help agencies and the advancement prospects of low earners", in Autor, D.H. (Ed.), *Studies of Labor Market Intermediation*, University of Chicago Press, Chicago, pp. 373-398.

Arulampalam, W. and Booth, A.L. (1998), "Training and labour market flexibility: is there a trade-off?", *British Journal of Industrial Relations*, Vol. 36 No. 4, pp. 521-536.

Autor, D. (2001), "Why do temporary help firms provide free general skills training?", *The Quarterly Journal of Economics*, Vol. 116 No. 4, pp. 1409-1448.

Autor, D. and Houseman, S.N. (2006), "Temporary agency employment: a way out of poverty?", in Blank, R.M., Danziger, S.H. and Schoeni, R.F. (Eds), *Working and Poor: How Economic and Policy Changes Are Affecting Low-Wage Workers*, Russell Sage Foundation, New York, pp. 312-337.

Barbieri, P. and Cutuli, G. (2016), "Employment protection legislation, labour market dualism, and inequality in Europe", *European Sociological Review*, Vol. 32 No. 4, pp. 501-516.

Bentolila, S., Dolado, J.J. and Jimeno, J.F. (2019), "Dual labour markets revisited", IZA Discussion Papers No. 12126, Institute of Labor Economics (IZA), Bonn.

Blanchard, O. and Landier, A. (2002), "The perverse effects of partial labour market reform: fixed-term contracts in France", *The Economic Journal*, Vol. 112 No. 480, pp. F214-F244.

Boeri, T. and Van Ours, J.C. (2013), *The Economics of Imperfect Labor Markets*, Princeton University Press, Oxford.

Booth, A.L., Francesconi, M. and Frank, J. (2002), "Temporary jobs: stepping stones or dead ends?", *The Economic Journal*, Vol. 112 No. 480, pp. F189-F213.

Brancaccio, E., De Cristofaro, F. and Giammetti, R. (2020), "A meta-analysis on labour market deregulations and employment performance: no consensus around the IMF-OECD consensus", *Review of Political Economy*, Vol. 32 No. 1, pp. 1-21.

Browning, M., Crossley, T.F. and Smith, E. (2007), "Asset accumulation and short-term employment", *Review of Economic Dynamics*, Vol. 10 No. 3, pp. 400-423.

Card, D. and Krueger, A.B. (1995), "Time-series minimum-wage studies: a meta-analysis", *American Economic Review*, Vol. 85 No. 2, pp. 238-243.

Card, D., Kluve, J. and Weber, A. (2010), "Active labour market policy evaluations: a meta-analysis", *The Economic Journal*, Vol. 120 No. 548, pp. F452-F477.

Card, D., Kluve, J. and Weber, A. (2017), "What works? A meta-analysis of recent active labour market program evaluations", *Journal of the European Economic Association*, pp. 1-38.

Casquel, E. and Cunyat, A. (2008), "Temporary contracts, employment protection and skill: a simple model", *Economics Letters*, Vol. 100 No. 3, pp. 333-336.

Cockx, B. and Picchio, M. (2012), "Are short-lived jobs stepping stones to long-lasting jobs?", *Oxford Bulletin of Economics and Statistics*, Vol. 74 No. 5, pp. 646-675.

de Graaf-Zijl, M. (2005), "The economic and social consequences of temporary employment: a review of the literature", *SEO Discussion Papers*, Vol. 47, pp. 107-139.

Dekker, R. (2008), "Unemployment durations after temporary work: evidence for Great Britain and Germany", MPRA Paper 7646, University Library of Munich, Germany.

Esteban-Pretel, J., Nakajima, R. and Tanaka, R. (2011), "Are contingent jobs dead ends or stepping stones to regular jobs? Evidence from a structural estimation", *Labour Economics*, Vol. 18 No. 4, pp. 513-526.

Fouarge, D., de Grip, A., Smits, W. and de Vries, R. (2012), "Flexible contracts and human capital investments", *De Economist*, Vol. 160, pp. 177-195.

Gagliarducci, S. (2005), "The dynamics of repeated temporary jobs", *Labour Economics*, Vol. 12 No. 4, pp. 429-448.

García-Pérez, J.I., Marinescu, I. and Vall Castello, J. (2019), "Can fixed-term contracts put low skilled youth on a better career path? Evidence from Spain", *Economic Journal*, Vol. 129 No. 620, pp. 1693-1730.

Havránek, T., Stanley, T.D., Doucouliagos, H., Bom, P., Geyer-Klingeberg, J., Iwasaki, I., Reed, W.R., Rost, K. and Van Aert, R.C.M. (2020), "Reporting guidelines for meta-analysis in economics", *Journal of Economic Surveys*, Vol. 34 No. 3, pp. 469-475.

Howell, D.R., Baker, D., Glyn, A. and Schmitt, J. (2007), "Are protective labor market institutions at the root of unemployment? A critical review of the evidence", *Capitalism and Society*, Vol. 2 No. 1, pp. 1-71.

Ichino, A., Mealli, F. and Nannicini, T. (2008), "From temporary help jobs to permanent employment: what can we learn from matching estimators and their sensitivity?", *Journal of Applied Econometrics*, Vol. 23 No. 3, pp. 305-327.

Kluve, J. (2010), "The effectiveness of European active labor market programs", *Labour Economics*, Vol. 17 No. 6, pp. 904-918.

74

Kvasnicka, M. (2009), "Does temporary help work provide a stepping stone to regular employment?", in Autor, D.H. (Ed.), *Studies of Labor Market Intermediation*, University of Chicago Press, Chicago, pp. 335-372.

Loh, E.S. (1994), "Employment probation as a sorting mechanism", *ILR Review*, Vol. 47 No. 3, pp. 471-486.

OECD (2004), *Employment Outlook*, OECD, Paris.

Picchio, M. (2008), "Temporary contracts and transitions to stable jobs in Italy", *Labour*, Vol. 22, pp. 147-174.

Picchio, M. and Staffolani, S. (2019), "Does apprenticeship improve job opportunities? A regression discontinuity approach", *Empirical Economics*, Vol. 56 No. 1, pp. 23-60.

Rebollo Sanz, Y. (2011), "Landing a permanent contract in Spain: do job interruptions and employer diversification matter?", *The Manchester School*, Vol. 79 No. 6, pp. 1197-1236.

Skedinger, P. (2010), *Employment Protection Legislation: Evolution, Effects, Winners and Losers*, Edward Elgar Publishing, Cheltenham.

Stanley, T.D. (2005), "Beyond publication bias", *Journal of Economic Surveys*, Vol. 19 No. 3, pp. 309-345.

Stanley, T.D. and Doucouliagos, H. (2012), *Meta-regression Analysis in Economics and Business*, Routledge, London.

Tejada, M.M. (2017), "Dual labor markets and labor protection in an estimated search and matching model", *Labour Economics*, Vol. 46, pp. 26-46.

Verhofstadt, E. and Goebel, C. (2008), "Is temporary employment a stepping stone for unemployed school leavers?", ZEW Discussion Papers 08-093, ZEW - Leibniz Centre for European Economic Research.

Wang, R. and Weiss, A. (1998), "Probation, layoffs, and wage-tenure profiles: a sorting explanation", *Labour Economics*, Vol. 5 No. 3, pp. 359-383.

Appendix
The Appendix file for this article can be found online.

Corresponding author
Mattia Filomena can be contacted at: m.filomena@pm.univpm.it