Causal pathways of intergenerational poverty transmission in selected EU countries

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Αιτιώδεις διαδρομές της διαγενεακής μεταβίβασης της φτώχειας σε επιλεγμένες χώρες της ΕΕ

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ABSTRACT

The paper investigates whether, in what way and to what extent the family of origin affects offspring's poverty risk in selected EU countries representing different social protection systems. Employing logit models and utilizing EU-SILC data, the analysis brings to the forefront the importance of social protection for intercepting the intergenerational transmission of poverty. Denmark with the social-democratic welfare state is the most successful in mitigating the effect of the family of origin on offspring's poverty risk, followed by France representing the conservative-corporatist welfare regime. Less effective on this matter appear to be Greece and Great Britain representing the south-European and the liberal social protection system respectively.

KEY WORDS: Poverty, intergenerational mobility, intergenerational poverty transmission, parental background occupation social protection welfare regimes, EU.

ΠΕΡΙΛΗΨΗ

Το άρθρο διερευνά εάν, με ποιο τρόπο και σε ποιο βαθμό η οικογένεια προέλευσης επηρεάζει τον κίνδυνο φτώχειας των απογόνων σε επιλεγμένες χώρες της ΕΕ που αντιπροσωπεύουν διαφορετικά συστήματα κοινωνικής προστασίας. Κάνοντας χρήση logit μοντέλων και αξιοποιώντας μικροδεδομένα από την EU-SILC, η ανάλυση αναδεικνύει τη σημασία της κοινωνικής προστασίας για την αναχαίτιση της διαγενεακής μεταβίβασης της φτώχειας. Η Δανία με το σοσιαλδημοκρατικό κράτος πρόνοιας είναι η πιο επιτυχημένη στην άμβλυνση της επίδρασης της οικογένειας προέλευσης στον κίνδυνο φτώχειας των παιδιών, ακολουθούμενη από την Γαλλία που αντιπροσωπεύει το συντηρητικό-κορπορατιστικό καθεστώς ευημερίας. Λιγότερο αποτελεσματικές σε αυτό το ζήτημα εμφανίζονται η Ελλάδα και η Μεγάλη Βρετανία που αντιπροσωπεύουν το νοτιοευρωπαϊκό και το φιλελεύθερο σύστημα κοινωνικής προστασίας αντίστοιχα.

ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ: Φτώχεια, διαγενεακή κινητικότητα, διαγενεακή μεταβίβαση φτώχειας, γονεϊκό υπόβαθρο, κοινωνική προστασία, καθεστώτα ευημερίας, ΕΕ.

1. Introduction

This paper delves into the aspect of the causal dynamics by which poverty is transmitted from parents to children. The aim is to investigate whether, in what way and to what extent the family of origin affects children's probability of falling below the poverty threshold in adulthood in selected EU countries (Denmark, France, Great Britain and Greece). These countries represent differ-

ent welfare regimes according to the dominant debate on the welfare state typologies in the EU. Thus, any systematic cross-national differences in the family background effect on adult's poverty risk can be attributed to the different institutional arrangements of the social protection systems.

The paper draws upon and advances earlier work carried out by Papanastasiou and Papatheodorou (2010) and Papatheodorou and Papanastasiou (2010). It deepens the empirical analysis on the intergenerational transmission of poverty (ITP) in selected EU countries by utilizing the microdata from the intergenerational module of EU-SILC 2005. By gathering information on the family background of the respondents when they were 14-16 years of age, this retrospective survey allows for comparable estimates across the EU countries. This dataset has no information on parents' income to investigate the effect of family poverty on children's poverty, as a conventional study of ITP would require. Alternatively, parental occupation is used as proxy of the family economic background, as it is widely recommended in the relevant literature. Thus, offspring's poverty risk is regressed on parental occupation along a set of control variables by employing logit models.

The rest of the paper is structured as follows: The next section presents the theoretical background and summarizes the empirical findings on the causal mechanisms by which poverty is transmitted from one generation to the next. The third section offers a description of the microdata and other methodological parameters of the paper. The fourth section provides an empirical exploration of the association between the family of origin and the adults' poverty risk in the selected EU countries. The last section is devoted to summarizing and concluding.

2. Background to the study

The causal mechanisms by which poverty is transmitted from one generation to the next have been characterized as "black box" of ITP because a large part - approximately the half (R2 ≤ 0.5) - of the involved mechanisms remains obscure up to now (Bowles and Gintis, 2001). The "human capital" theory has become main tool to understand ITP by social researchers and policymakers. It claims that the intergenerational reproduction of inequalities is due to the deficiency of the less well-off families' economic resources to invest in their children's "quality" (e.g. education) due to borrowing constraints in economy (Becker and Tomes, 1979; 1986). This approach has had a tremendous impact on the scientific thinking and policy making (as it appears to be consistent with the Paretian optimality) and, as result, the lion's share of the anti-poverty funds has been placed on childcare, education, training and lifelong learning. However, the emphasis placed on "human capital" as the "great leveler" has seriously been contested by subsequent studies (Card, 1999; Breen and Goldthorpe, 2001; Erikson and Goldthorpe, 2002; Warren et al, 2002). What is more, the overly optimistic view of rapid regression to the mean between rich and poor families in the developed nations, put forward by Becker and Tomes (1986), has been cast into doubt by newer empirical assessments (Zimmerman, 1992; Solon 1989, 1992, 1999; Mazumder, 2001).

Furthermore, a popular belief among a group of social researchers and policymakers is that the intergenerational inequalities are due to the cultural and behavioral traits of the poor. This view draws upon the concepts of the "culture of poverty" (Lewis, 1965, 1969) and the "culture of welfare dependency" (Murray, 1984; Mead, 1986, 1992), which ascribe poverty to dysfunctional values, attitudes and behaviors of the poor. However, this view has attracted fierce criticism for its incapacity to take account of structural and institutional aspects of poverty. The criticism is leveled at the explicit blaming of the poor that tends to depoliticize the social problem of poverty, as eve-

ryone is led to believe that poverty is associated with individual values and behaviors, rather than structural factors of modern societies (Papatheodorou and Papanastasiou, 2017).

Similarly, a group of social researchers and policymakers has turned the discussion on ITP to the idiosyncratic features of the poor. This view rests on empirical studies in which the cognitive (Herrnstein and Murray, 1994; Saunders, 1996; 1997) and/or non-cognitive abilities (Heckman and Rubinstein, 2001; Heckman and Carneiro, 2003; Heckman et al, 2006) appear to greatly predict future attainments. Yet, these studies fail to capture the broader interactions of individual idiosyncrasy with the family and the societal milieu. Research suggests that 60% of the variance in IQ in poor families is accounted for by socioeconomic factors, while the contribution of genes is close to zero (Turkheimer et al, 2003).

A more radical approach on ITP is taken by social researchers, who emphasize the political economy of capitalism (Myrdal, 1962; Wilson, 1987; Hariss-White, 2005). By political economy is meant the approach that considers society as a field of conflict between antagonistic social groups and classes (Papatheodorou and Papanastasiou, 2017). Thus, the inequalities produced and reproduced by capital accumulation, segregated labor markets, institutional discrimination, residual social protection, etc. have been identified as main determinants of ITP. The political economy approach offers some important conceptual tools to understand the causes of ITP, such as the interplay between economy and politics and the ensuing power relations, which appear to be lacking from major theoretical schemes embracing a rather individualistic approach towards ITP.

There have been numerous empirical studies on ITP (for an overview see d' Addio, 2007; Jenkins and Siedler, 2007a). Here the attention is on those studies examining the effect of family poverty on offspring's future outcomes. Most of the empirical studies suggest that growing up in a poor family raises the probability of falling below the poverty threshold in adulthood (Corcoran, 1995; Corcoran and Adams, 1997; Airio et al, 2004; Musick and Mare, 2004; Blanden and Gregg, 2004; Blanden, 2006; Blanden and Gibbons, 2006; Bellani and Bia, 2013; Serafino and Tonkin, 2014). A strand of empirical studies examines the effect of childhood poverty on individual attainment in terms of education, occupation and income or wage. The empirical findings suggest there is a pronounced negative association between childhood poverty and individual attainment (Haveman and Wolfe, 1994; Haveman et al, 1997; Teachman et al, 1997; Ermisch et al, 2001). Moreover, the empirical findings suggest that childhood poverty is associated with more pronounced diminishing outcomes, the longer one lives in it (Haveman et al, 1997; Teachman et al, 1997).

Papatheodorou (1997) and Papatheodorou and Piachaud (1998) offer estimates of the influence of the family of origin on offspring's poverty risk by utilizing microdata from a Greek study carried out in 1988. Using parental occupation and education as proxies of the family background, the authors find out that the poverty risk is affected directly by parental occupation and indirectly by parental education through the effect the latter has on children's education. Moreover, Papanastasiou and Papatheodorou (2010), Papatheodorou and Papanastasiou (2010) and Papanastasiou et al (2016) found evidence of extensive ITP in south European countries contrary to northwestern countries (and especially the Nordic ones). The patterning in ITP outcomes across the EU that was found by those researchers leads to a clustering of countries based on distinct and longstanding welfare states (Esping-Andersen, 1990; Liebfried, 1993; Ferrera, 1996.) As also several studies have shown, the cross-country differences in poverty and inequality in the EU are largely attributed to the social protection system that each member-state has developed (Papatheodorou and Petmesidou, 2004; 2005; Papatheodorou et al, 2008; Dafermos and Papatheodorou, 2010; Papatheodorou and Dafermos, 2010; Dafermos and Papatheodorou, 2013).

3. Data and methodology

**T**he standard linear model of ITP can take the following form:

$$Y = \beta_0 + \sum \beta_{i(1,\ldots,k)} X_{i(1,\ldots k)} + \sum \beta_{f(1,\ldots,n)} X_{f(1,\ldots n)} + W + Z$$

where Y is offspring's poverty risk, Xi are the individual covariates, Xf are the family covariates, W is the effect of unobservable individual factors and Z is the effect of unobservable family factors. This model assumes non-correlation between observed and unobserved effects to produce unbiased coefficients. If this hypothesis is violated, then one should adapt the statistical model with parametric or non-parametric techniques, albeit none of them can guarantee the complete unbiasedness of the estimates (see Jenkins and Siedler, 2007b).

Figure 1 delineates the potential causal associations taking place within the ITP process. The causal pathways of the individuals' future welfare could be both direct (A) and/or indirect (BC). The family effect can take three forms: a) monetary and non-monetary investment (e.g. investment in human capital and incorporation in social networks), b) transmission of norms and values (e.g. transmission of cultural values and socially acceptable behaviors) and c) transmission of genetic characteristics (e.g. transmission of cognitive abilities and personality traits) (see Roemer, 2004). As there is no reason to assume any systematic cross-country differences in certain genetic characteristics of individuals (e.g. IQ), the focus should be on the first two parameters, of which investment can be approximated by parental occupation and family culture by parental education. The empirical investigation of the effects A and BC is the subject-matter of this study, whereas preliminary attempts to kick father's education into the analysis were hindered by the presence of multicollinearity.

The paper utilizes microdata from the intergenerational module of EU-SILC 2005. This dataset is preferred over the similar 2011 one because it has available intergenerational weights for all the countries under consideration. The intergenerational module contains retrospective information on the family background of the respondents when they were 14-16 years of age. The retrospective data include parental age, parental occupation, parental education, family composition and family financial di-stress. Since there is no information on parental income, there is no possibility to assess the effect of parental income on children's future outcomes. Still, parental occupation is considered good proxy of parental permanent income because of its high correlation with income (Nickell 1982; Erikson and Goldthorpe, 2002; Solon, 2002; Corak, 2006). Moreover, parental occupation offers some advantages over income because it is relatively stable over time and, hence, is less susceptible to transitory fluctuations (Nickell 1982; Ermisch and Francesconi 2002; Zaidi and Zolyomi, 2007; Torch, 2013). In preliminary analyses, the variables of father's education and children's education were considered, but eventually they were dropped from the model due to multicollinearity issues.

Figure 1: The conceptual model of ITP
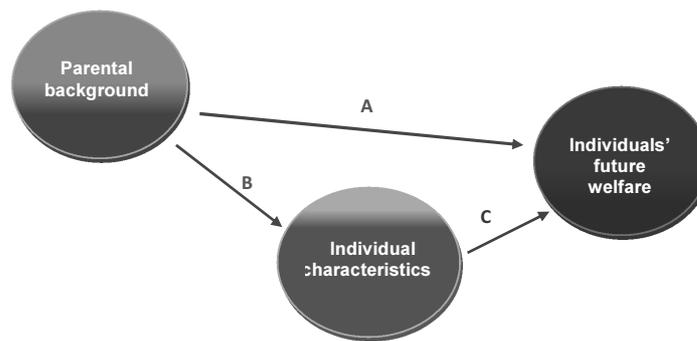
The empirical analysis employs binomial and ordered regression to investigate the main research questions. In the analysis, the poverty risk is the response variable, while father's occupation, family structure, number of siblings, father's age, children's occupation, sex, age, locality, chronic illness and degree of urbanization are the explanatory variables.[1] The poverty risk is estimated following the well-known and broadly used EU poverty line of the 60% of the median equivalized disposable income. The coding of the variables of interest is as follows:

- Poverty risk (poor, non-poor)
- Father's occupation (higher skilled non-manual, lower skilled non-manual, skilled or un-skilled manual)[2]
- Family type (single-parent, two-parent)
- Number of siblings[3]
- Children's occupation (higher skilled non-manual, lower skilled non-manual, skilled or unskilled manual)[4]
- Gender (male, female)
- Age (father's/child's)[5]
- Locality (local, non-local)
- Chronic illness (chronic, non-chronic)
- Degree of urbanization (densely populated, thinly populated).

For comparative purposes, the study investigates ITP in four EU countries, namely Denmark, France, Greece and Great Britain. These countries represent the four welfare state regimes according to Esping-Andersen's (1990) typology and the following debate on the welfare regime of the south-European countries (Leibfried, 1993; Ferrera, 1996; Papatheodorou and Petmesidou, 2004; 2005). That is, Denmark, France, Great Britain and Greece represent the social-democratic, the corporatist-conservative, the liberal and the south-European welfare regime respectively. The choice of these countries allows us to associate the cross-national differences in the family background effect on the adults' poverty risk to the different social protection system that each country has developed. In other words, it allows us to examine the impact of the welfare state institutions and policies on ITP in the EU in a highly indirect manner.

4. Empirical analysis

Advancing the methodology developed by Papanastasiou and Papatheodorou (2010) and Papatheodorou and Papanastasiou (2010), the empirical analysis examines the effect of family background variables $\chi_f = (\chi_1, \ldots, \chi_n)$ on the probability $p = p(\chi)$ or, otherwise, the risk of children falling below the poverty threshold in adulthood before and after controlling for a series of individual variables $\chi_i = (\chi_1, \ldots, \chi_k)$. The methodological choice is a logit model in which the binary variable "poor/non-poor" is the response one with values 0 for "failure" with probability $p(y = 0) = p$ and 1 for "success" with probability $p(y = 1) = 1 - p$. The poverty risk is computed according to the poverty line of the 60% of the median equivalized disposable income. The modified OECD equivalence scale is employed to weigh the incomes of individuals from households with different size and composition. This scale assigns a weight of 1 to the first adult member of the household, 0.5 to each additional adult and 0.3 to each child. The logit model is based on the Bernoulli distribution which is a special case of binomial distribution with number of trials n = 1. The N for each country is chosen based on covariance patterns to accommodate the goodness-of-fit of the models. The weighting procedure is based on the available intergenerational cross-sectional base weight in EU-SILC 2005. This is the reason why the 2005 dataset was chosen in this analysis instead of the 2011 one in which this weight is missing for some countries (i.e. Denmark and Greece). The results are expressed in odds ratios for the sake of easier interpretation. Based on the above methodological choices, the logit model can be summarized as:

$$\log p(Y = 1/X = x) = \beta_0 + \sum \beta_{f(1,..,n)} x_{f(1,...,n)} + \sum \beta_{i(1,...,k)} x_{i(1,...,k)} + \varepsilon$$

where p is the probability (or the risk) of poverty, xf are the family covariates, xi are the individual covariates and ε is the error term (Hosmer and Lemeshow, 2000; Agresti, 2002; Hilbe, 2009; Kleinbaum and Klein, 2010).

Table 1 presents the findings from the regression of poverty risk on the family covariates before controlling for the individual covariates. The focus is on the association between father's occupation and adult children's poverty risk, since father's occupation is regarded the most representative variable of the household's economic situation. The analysis shows that only in Denmark father's occupation appears to have no statistically significant effect on the poverty risk. This finding means that Denmark's social protection system is probably more effective in mitigating the effect of the family of origin on children's poverty outcomes. By contrast, the effect of father's occupation on the poverty risk appears to be statistically significant in the other three countries. However, the above analysis provides only a partial view on the determinants of children's poverty when they become adults since there was no control for individual variables. Therefore, it is important to test whether the direct effect of father's occupation on the adults' poverty risk that we found earlier persists after controlling for individual characteristics.

By regressing the poverty risk on parental and individual covariates, it appears that the direct effect of father's occupation on offspring's poverty risk disappears in France altogether from a statistical point of view (see Table 1). This indicates that the effect of father's occupation on the poverty risk that we found earlier may be mediated by individual variables such as

children's occupation. In contrast, the direct effect of father's occupation on the poverty risk remains statistically significant in Greece and Great Britain even after controlling for individual background variables. This finding indicates that the countries with south-European or liberal social protection system respectively are probably less effective in reducing the influence of the family of origin on children's future outcomes. The findings suggest there is still no statistically significant effect of father's occupation in Denmark as demonstrated earlier. The results also indicate that the adult's occupation is a basic determinant of poverty risk in all countries except Denmark. This country is distinguished because neither father's nor children's occupation can predict the poverty risk. This could be an indication of the effectiveness of the redistributive mechanisms of Denmark's welfare state that manage to protect the individuals from poverty irrespective of the family of origin and individual characteristics.

Table 1: The effect of parental background on offspring's poverty risk

Poverty risk	Denmark	France	Greece	Great Britain
	Without individual covariates			
Manual (father)	.870 (.110)	.832** (.058)	.662** (.073)	.678*** (.079)
Lower skilled non-manual (father)	.890 (.107)	.848** (.070)	.668*** (.070)	.791** (.088)
N	4290	11548	8269	5880
Poverty risk	**Denmark**	**France**	**Greece**	**Great Britain**
	With individual covariates			
Manual (father)	.912 (.073)	.945 (.071)	.756** (.090)	.756** (.090)
Lower skilled non-manual (father)	.956 (.059)	.987 (.087)	.794** (.092)	.830 (.095)
Manual (child)	.960 (.062)	.636*** (.047)	.571*** (.060)	.664*** (.068)
Lower skilled non-manual (child)	(.980) (.071)	.765*** (.061)	.634*** (.074)	.667*** (.064)
N	4090	11176	7191	5772

Control variables: Family structure (not available for Great Britain), number of siblings, father's age, locality, chronic illness, child's age, gender and degree of urbanization.
Reference category: Higher skilled non-manual work (father/child).
The table contains odds ratios and robust standard errors. The constant term is omitted.
*** p<0.01, ** p<0.05, *p<0.10
Source: Elaboration of data from EU-SILC 2005.

Among the above findings, the one that child occupation is a main determinant of poverty risk in France, Greece and Great Britain gives grounds to assume that there might be a mediating effect of children's occupation in the relationship between father's occupation and poverty risk. Therefore, it is purposeful to examine whether father's occupation has a causal effect on children's occupational achievement. This analysis makes use of a standard ordered model in which the coefficients of the explanatory variables do not vary in the cut points k=1, …, m-1 of the response variable. This choice is justified upon the Brant test indicating that there is no violation of the parallel regression assumption of the standard ordered model (Proportional Odds Model) for the selected countries. The Proportional Odds Model has children's occupation as the response variable with values 1 = "skilled or unskilled manual", 2 = "lower skilled non-manual" and 3 = "higher skilled non-manual" with probabilities:

$$p(y = 1) = F(-x_f\beta_1),$$

$$p(y = 2) = F(-x_f\beta_2) - F(-x_f\beta_1) \quad \text{and}$$

$$p(y = 3) = 1 - F(-x_f\beta_2) \qquad \text{respectively}$$

This model can be summarized as:

$$\log\left[\frac{p(y>k)}{p(y\leq k)}\right] = \beta_k x_{f(1,..,n)} + \varepsilon$$

where p is the probability of child occupation in the dividing point k, xf are the family covariates, k are the dividing points 1 and 2 and ε is the error term.

Table 2 confirms that father's occupation has a statistically significant effect on children's occupation in all countries. That is, there is greater probability for children to attain non-manual compared to manual work when fathers occupy a non-manual position in the occupational hierarchy, holding all other factors constant. This finding means that, even if there is no direct effect, father's occupation can be associated with offspring's poverty risk in an indirect manner through children's occupational achievement, as is the case of France. The indirect effect is evident in Greece and the UK, but alongside the direct effect shown earlier in Table 1. Papatheodorou (1997) reaches similar conclusions when it comes to the relationship between father's occupation and offspring's poverty risk. In contrast, it appears there is no mediating effect in Denmark since, notwithstanding the association between father's and children's occupation, there is no statistically significant effect of child occupation on the poverty risk, as shown earlier in Table 1. All in all, the findings suggest that when studying ITP caution should be given to indirect channels through which the family background affects children's poverty risk which may not be observable or be traceable at first sight.

Table 2: The effect of parental background on children's occupational attainment

Child occupation	Denmark	France	Greece	Great Britain
Manual (father)	3.056*** (0.234)	4.003*** (0.234)	4.443*** (0.327)	3.971*** (0.291)
Lower skilled non-manual (father)	2.471*** (0.213)	3.703*** (0.183)	3.200*** (0.241)	1.913*** (0.133)
N	4103	11253	7212	5799

Control variables: Family structure (not available for Great Britain), number of siblings, father's age.
Reference category: Higher skilled non-manual (father/child).
The table contains odds ratios and robust standard errors. The constant term is omitted.
*** p<0.01, ** p<0.05, *p<0.10
Source: Elaboration of data from EU-SILC 2005.

5. Conclusion

The aim of this paper was to investigate ITP in the EU by utilizing the EU-SILC 2005 intergenerational microdata. The focus was on the association between the family background and the risk of children falling below the poverty line in adulthood in four EU countries representing different welfare state regimes. The emphasis was mainly placed on the effect of father's occupation, since it is considered the best proxy of parental socioeconomic background according to the available information in the EU-SILC 2005 survey. The findings suggest that father's occupation is associated with offspring's poverty risk in differing ways: in Greece and Great Britain the effect is both direct and indirect, in France it is only indirect, while in Denmark there is no effect altogether (see Table3). Thus, children's occupation and, more generally, children's attainments appear to be an important mediator that should be considered in studies of ITP.

Table 3: The effect of parental background on the adults' poverty risk

	Direct	Indirect
Denmark	-	-
France	-	√
Great Britain	√	√
Greece	√	√

From a social policy perspective, the findings provide insights for the significant impact that the social protection system and the welfare state institutions have on ITP in the EU. The findings suggest that Denmark with the social-democratic welfare state is the most successful in mitigating the effect of the family of origin on adults' poverty risk, followed by France that represents the conservative welfare state. Less effective in this matter appear to be Greece and Great Britain with the south-European and the liberal social protection system respectively. In terms of policy implications, the results suggest that priority should be placed in breaking the cycle of ITP through policies that disassociate children's socioeconomic attainment from the parental background. Finally, more detailed evidence on the performance of different welfare states on ITP are of great importance in understanding the mechanisms by which poverty is reproduced over time as well as in reforming, implementing and evaluating the relevant policies.

Notes

1. In preliminary analyses, we considered the variable of mother's occupation as explanatory one, but eventually it was dropped from the analysis due to assortative mating (Rauum et al, 2007) and the cumulative effect with other parental characteristics (Papatheodorou, 1997; Papatheodorou and Piachaud, 1998).
2. This classification allows for the ordering of parental occupation based on status and remuneration. The category higher skilled non-manual refers to managers, professionals and technicians. The category lower skilled non-manual refers to clerks and service workers. The category skilled or unskilled manual refers to agricultural and fishery workers, craft workers, plant and machine operators and unskilled manual workers (see Maitre and Whelan, 2008).
3. The number of siblings is used in numeric format because the association with the poverty risk is approximately linear.
4. The category of self-employed is left out of the analysis because there are known problems of reliability along the income dimension which bias the results on the poverty indicator.
5. Age is used in numeric format because the association with the poverty risk is approximately linear.

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