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Investment Approach to Active Labour Market Policy: How It Works for Employers and Employees

Inwestycyjne podejście do aktywnej polityki rynku pracy – jak wpływa na pracodawców i pracowników

Abstract

Governments often view labour market measures as primarily aimed at employees, but are employees truly the main beneficiaries of active labour market policies (ALMPs)? Unlike passive labour market policies, which provide direct payments to the unemployed, ALMPs can be seen as measures directed at employers. This paper proposes an investment-oriented approach to ALMP implementation, where the positive effects are primarily recognised by employers and appear in the years following implementation. Using a fixed-effects panel model with yearly data for 29 OECD countries, we find significant negative short-term effects and positive lagged effects of ALMPs on both total and corporate gross value added (GVA). These effects vary in magnitude, with the lagged effects outweighing the short-term ones. The influence of various ALMPs on employees' GVA is mostly insignificant.

Keywords:
gross value added, active labor market policies, human capital investments, compensation of employees, fixed effects panel regression

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Streszczenie

Rządzący często uważają, że środki regulacji rynku pracy są skierowane przede wszystkim do pracowników. Ale czy rzeczywiście pracownicy są głównymi beneficjentami aktywnej polityki rynku pracy (APRP)? W przeciwieństwie do pasywnych polityk rynku pracy, które kierują płatności bezpośrednio do bezrobotnych, APRP można postrzegać jako politykę skierowaną do pracodawców. W artykule zaproponowano podejście inwestycyjne do wdrażania APRP, które zakłada, że pozytywne efekty stosowania środków APRP dotyczą głównie pracodawców oraz że następuje to w latach następnych po zastosowaniu odpowiednich środków regulacji rynku pracy. Wykorzystując model panelowy z efektami stałymi – na podstawie danych rocznych dla 29 krajów OECD za lata 2013–2019 – znaleziono dowody na istnienie statystycznie istotnego negatywnego wpływu krótkoterminowego i statystycznie istotnego pozytywnego opóźnionego wpływu APRP na wartość dodaną brutto ogólnie i w sektorze przedsiębiorstw. Wpływy te różnią się wielkością, przy czym efekty opóźnione są silniejsze niż krótkoterminowe. Wpływ różnych rodzajów APRP na wartość dodaną brutto pracowników jest w większości nieistotny.

Słowa kluczowe:
wartość dodana brutto, aktywne polityki rynku pracy, inwestycje w kapitał ludzki, wynagrodzenia pracowników, model panelowy z efektami stałymi

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Introduction

Since the 1990s, labour market authorities have increasingly recognised the need for active labour market policies (ALMPs) to strengthen the link between social protection, labour market development, and employment. These policies are widely seen as vital tools for enhancing labour market flexibility and promoting economic development [**Casey, 2004**; **Bonoli, 2010**]. ALMP spending has become significant and continues to grow. Between 2000 and 2015, excluding the period of the 2008–2010 economic crisis, public spending on ALMPs in OECD countries grew at an average annual rate of 6%. Currently, ALMP expenditures account for almost 40% of the overall labour market policy budget in the OECD area.

ALMPs contribute to economic growth by increasing overall employment and productivity. By targeting disadvantaged groups (e.g., long-term unemployed, youth, older workers), ALMPs help reduce income inequality. Although ALMPs require public investment, they can have positive fiscal impacts in the long run. Increased employment leads to higher tax revenues and lower social welfare expenditures, improving public finances. ALMPs that focus on training and education can enhance the overall skill level of the workforce, attracting investment and driving innovation.

While the primary goals of ALMPs are direct – reducing unemployment, increasing workforce participation, and improving job matching – these policies can also have several indirect effects or externalities at the macroeconomic level [**Calmfors, Lang, 1995**; **Card et al., 2010**, **2018**; **Kluve, 2010**]. These indirect effects are multifaceted, encompassing economic, fiscal, social, and health dimensions. By improving employment rates and workforce skills, ALMPs contribute to economic growth, reduce inequality, enhance public finances, and foster a more dynamic and innovative labour market. These positive externalities underscore the broader benefits of implementing comprehensive and well-designed ALMPs.

However, the implementation of ALMPs has not always been successful. While some empirical evidence shows significant positive effects of specific ALMP measures [**OECD, 2005**, **2015a**], their aggregate-level effects are relatively small [**Layard et al., 2009**; **Lalive et al., 2005**; **Larsen, 2002**]. Single-country studies often find a minor overall influence of ALMPs, and cross-country studies present mixed results regarding their effects on employment and unemployment [**Bassanini, Duval, 2006b**; **Martin, 2015**]. Further research [**Sahnoun, Abdennadher, 2023**] suggests that institutional factors, such as the quality of governance, significantly influence the effectiveness of ALMPs in reducing unemployment levels.

This paper aims to contribute to the debate by examining whether ALMPs have a positive economic effect by analysing how public ALMP spending influences Gross Value Added (GVA) growth. The GVA indicator measures the effects of policy interventions on specific economic sectors. Evaluating overall and sector GVA variations helps assess the effects of policy measures on sector productivity and general economic growth.

GVA is considered one of the most comprehensive indicators of economic performance for a specific industry or sector. However, the impact of ALMPs on GVA has not been thoroughly addressed in the literature. This gap is significant, especially given the slow economic growth worldwide and increasing fiscal pressures on many economies. These pressures have heightened attention to the opportunity costs of various government expenditures, including ALMP financing, as different types of government spending have varied effects on GVA.

The analysis is based on a panel cross-country and time series data of 29 countries which are members of the Organisation for Economic Co-operation and Development (OECD). The OECD countries provide detailed annual data on different ALMPs for the period of 2003–2019 [**OECD, 2018**].

This study contributes to the empirical evaluation of the economic effects of ALMPs. First, it disaggregates the analysis by type of ALMP to capture their distinct effects. Second, it differentiates the GVA components, specifically the corporate sector's GVA and employees' GVA. Third, the paper provides an updated aggregate assessment approach by extending the dataset's time and country coverage, thereby unveiling new estimates of the ALMPs effects.

The paper is structured as follows: Section 2 reviews studies examining the economic effects of ALMPs. Section 3 describes the data and variables. Section 4 defines the econometric model used to evaluate the influence of ALMPs on GVA and its components. Section 5 presents the econometric analyses of various ALMP effects on total GVA, as well as corporate sector and employee GVAs. Section 6 provides conclusions and general policy recommendations.

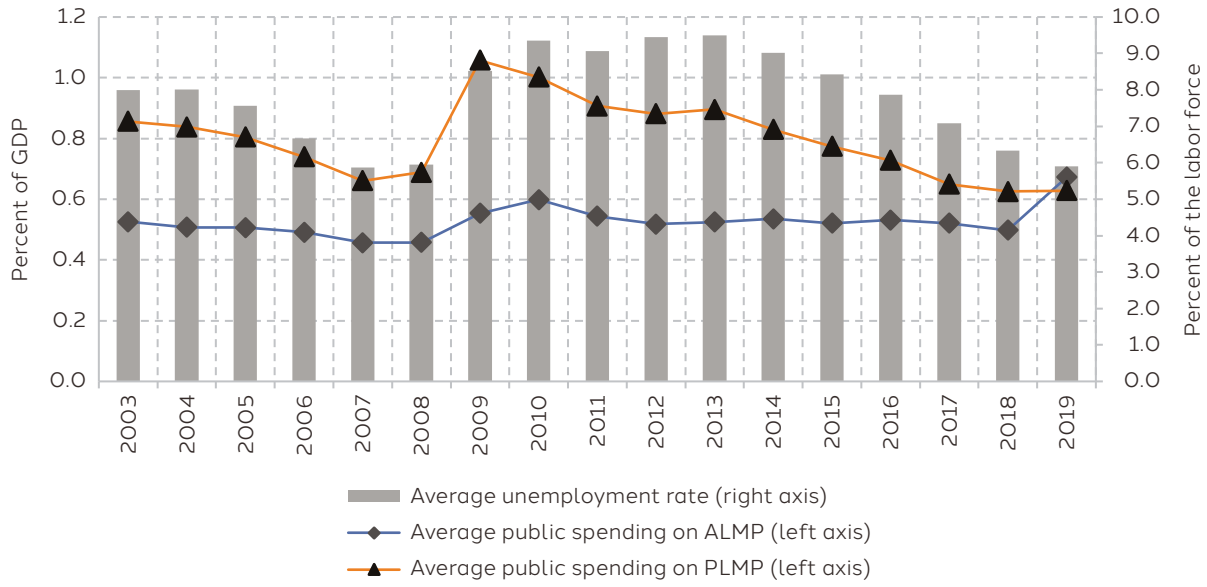
Active labour market policy

Active labour market policy in OECD countries

Passive labour market policies (PLMPs) act as built-in stabilisers, with spending directly tied to the unemployment rate and economic cycle. In contrast, active labour market policies (ALMPs) serve as discretionary instruments, with funding levels determined by government decisions and preferences for labour market intervention. As ALMPs become more significant and consume a larger share of public expenditures, their effectiveness warrants closer scrutiny.

Unlike PLMPs, ALMPs are not designed to directly address unemployment by providing financial support to affected citizens. Their discretionary nature becomes evident when unemployment declines. In such cases, governments may increase ALMP spending to offset reduced PLMP expenditures, thereby maintaining overall labour market intervention. This pattern was observed in OECD countries in 2019 (see Figure 1).

Figure 1. Average public ALMP and PLMP spending in OECD countries, 2002–2019, % of GDP



Source: OECDstats data [OECD, 2023b].

The average annual ALMP expenditures, as classified by the OECD [OECD, 2015b], show that public employment services and administration (PESA), training (TRA), and employment incentives (EIN) receive the largest shares of public ALMP funding among OECD countries. On average per country, PESA funding amounts to 0.123% of GDP, TRA funding to 0.151% of GDP, and EIN funding to 0.109% of GDP. Supported employment and rehabilitation (SER) funding stands at 0.079% of GDP. The lowest funding levels are for direct job creation (DJC) at 0.049% of GDP and start-up incentives (SUI) at 0.015% of GDP (see Table 1).

Table 1. The structure of the average annual (2003–2019) ALMP expenditures in OECD countries, % of GDP

Country	PESA	TRA	EIN	SER	DJC	SUI
Australia	0.173	0.012	0.104	0.058	0.032	0.007
Austria	0.169	0.412	0.051	0.028	0.047	0.005
Belgium	0.215	0.16	0.165	0.13	0.064	0.003
Canada	0.128	0.104	0.017	0.013	0.015	0.007
Switzerland	0.106	0.182	0.065	0.208	0	0.005
Chile	0	0.147	0.046	0	0.048	0.001
Czech Rep.	0.11	0.013	0.041	0.078	0.033	0.003
Germany	0.338	0.281	0.058	0.042	0.049	0.055
Denmark	0.346	0.509	0.26	0.667	0	0
Spain	0.128	0.143	0.185	0.073	0.092	0.098
Estonia	0.082	0.07	0.019	0.037	0	0.008
Finland	0.154	0.423	0.128	0.102	0.108	0.016
France	0.253	0.299	0.057	0.091	0.18	0.035
Greece	0.01	0.045	0.06	0	0.038	0.032
Ireland	0.117	0.271	0.051	0.01	0.207	0
Italy	0.08	0.157	0.21	0.005	0.007	0.021
Japan	0.068	0.013	0.066	0.006	0.018	0
Korea	0.026	0.043	0.034	0.017	0.127	0.012
Lithuania	0.064	0.058	0.089	0.014	0.03	0.002
Luxembourg	0.052	0.093	0.288	0.007	0.131	0
Latvia	0.049	0.088	0.032	0	0.048	0.002
Norway	0.126	0.197	0.084	0.151	0.001	0.002
New Zealand	0.127	0.123	0.236	0.044	0.004	0.006
Poland	0.078	0.046	0.092	0.177	0.02	0.045
Portugal	0.128	0.264	0.122	0.026	0.028	0.002
Slovak Rep.	0.087	0.01	0.065	0.031	0.025	0.035
Slovenia	0.078	0.051	0.046	0.005	0.077	0.023
Sweden	0.244	0.126	0.498	0.224	0	0.015
United States	0.029	0.042	0.005	0.045	0.006	0

Source: OECDstats data [OECD, 2023b].

Table 2. Comparison of ALMP expenditures in OECD countries in 2003 and 2019, % of GDP

Country	PESA		TRA		EIN		SER		DJC		SUI	
	2003	2019	2003	2019	2003	2019	2003	2019	2003	2019	2003	2019
Australia	0.185	0.169	0.009	0.007	0.012	1.611	0.049	0.062	0.085	0.002	0.01	0.004
Austria	0.167	0.176	0.302	0.398	0.059	0.057	0.027	0.023	0.041	0.042	0.004	0.005
Belgium	0.171	0.336	0.147	0.171	0.171	0.229	0.118	0.138	0.153	0.042	0.004	0.001
Canada	0.189	0.104	0.112	0.081	0.009	0.206	0.016	0.002	0.024	0.016	0.011	0.003
Switzerland	0.114	0.105	0.248	0.146	0.059	0.069	0.2	0.232	0	0	0.007	0.003
Chile	0	0	0.178	0.146	0.048	0.035	0	0	0.044	0.048	0	0.001
Czech Rep.	0.069	0.116	0.014	0.003	0.031	0.012	0.031	0.128	0.024	0.019	0.005	0
Germany	0.24	0.338	0.519	0.182	0.121	0.025	0.133	0.02	0.12	0.021	0.083	0.008
Denmark	0.28	0.376	0.6	0.357	0.328	0.174	0.496	0.978	0.001	0	0	0
Spain	0.086	0.13	0.136	0.107	0.28	0.082	0.065	0.126	0.11	0.113	0.045	0.136
Estonia	0.028	0.146	0.039	0.12	0.003	0.044	0	0.202	0	0	0.005	0.007
Finland	0.153	0.149	0.346	0.353	0.181	0.079	0.095	0.132	0.085	0.189	0.011	0.015
France	0.24	0.238	0.308	0.269	0.08	0.02	0.085	0.088	0.334	0.064	0.005	0.037

cont. Table 2

Country	PESA		TRA		EIN		SER		DJC		SUI	
	2003	2019	2003	2019	2003	2019	2003	2019	2003	2019	2003	2019
Greece	0.003	0.006	0.017	0.02	0.034	0.1	0	0	0	0.214	0.034	0.024
Ireland	0.122	0.045	0.245	0.105	0.093	0.017	0.008	0.009	0.218	0.133	0	0
Italy	0.057	0.069	0.255	0.126	0.35	0.07	0.004	0.006	0.027	0.002	0.047	0
Japan	0.099	0.066	0.019	0.013	0.038	0.059	0.001	0.01	0.003	0.002	0	0
Korea	0.019	0.045	0.041	0.068	0.01	0.087	0.022	0.027	0.012	0.1	0.006	0.041
Lithuania	0.042	0.048	0.067	0.04	0.04	0.113	0	0.012	0.043	0	0	0
Luxembourg	0.048	0.078	0.097	0.183	0.095	0.362	0.005	0.005	0.169	0.127	0.001	0
Latvia	0.036	0.049	0.026	0.049	0.012	0.027	0	0	0.042	0.019	0	0.002
Norway	0.121	0.141	0.419	0.086	0.106	0.067	0.124	0.106	0.006	0	0.001	0.001
New Zealand	0.131	0.134	0.155	0.053	0.037	3.763	0.044	0.032	0.008	0.002	0.022	0.001
Poland	0.057	0.07	0.098	0.005	0.051	0.059	0.143	0.152	0.035	0.008	0.015	0.03
Portugal	0.145	0.094	0.257	0.18	0.147	0.068	0.043	0.016	0.035	0.024	0.003	0.005
Slovak Rep.	0.161	0.043	0.015	0.02	0.012	0.106	0.024	0.042	0.034	0.009	0.033	0.013
Slovenia	0.005	0.072	0.046	0.038	0.061	0.051	0.034	0.003	0.103	0.035	0.013	0.003
Sweden	0.22	0.256	0.227	0.062	0.376	0.459	0.198	0.235	0	0	0.034	0.004

Source: OECDstats data [**OECD, 2023b**].

The structure of ALMP expenditures in OECD countries in 2003 and 2019 is rather unstable (see Table 2), reflecting a lack of consensus on labour market policy approaches, despite a shared understanding of the effectiveness of individual ALMPs. As a result, Australia, Canada, Lithuania, Luxembourg, New Zealand and Slovakia increased EIN financing by reducing funding for other instruments. Denmark, the Czech Republic and Estonia improved SER financing, Germany and Slovenia enhanced PESA financing, while Ireland and Greece boosted DJC financing. PESA instruments faced the largest cuts in Australia and Slovakia, while Estonia, Norway, Poland and New Zealand decreased public spending on TRA measures. EIN financing was reduced in Spain, DJC expenditures were cut in France, Lithuania, Latvia, Luxembourg and Slovenia, whereas SUI spending was reduced in Greece.

These variations highlight the absence of a unified strategy for labour market policies, reflecting differing national priorities and economic conditions. This overview of ALMP spending patterns and strategic shifts across OECD countries sets the stage for further analysis of the economic impact of these policies.

Literature review

Microeconomic studies on ALMPs

Microeconomic evaluations of ALMP effectiveness are based on non-experimental, quasi-experimental methods and randomised controlled trials. These studies typically employ various identification strategies, including matching estimators, duration models and, increasingly, difference-in-differences and instrumental variable approaches. One part of microeconomic evaluations focuses on short-term outcomes, typically measured six to 12 months after programme completion, while others examine medium- and long-term effects, looking at outcomes one to three years after completion. According to meta-analyses of relevant microeconometric studies, conducted by **Card et al.** [**2010**, **2018**], ALMPs have greater and positive effects on employment in the medium and long term compared to the short term.

Bratti et al. [**2022**], using a two-stage least squares approach, found no statistically significant positive effects of vocational training programmes on employment outcomes for unemployed youth in Latvia. In contrast, **Dauth** [**2020**], using an instrumental variable approach, reported that training subsidies for low-skilled employed workers in Germany between 2007 and 2010 increased employment duration and earnings in the short to medium term.

However, non-experimental approaches rely on observational data where the selection into treatment and control groups is not randomised. Therefore, it is important to recognise that the field has evolved, and a growing body of research now employs quasi-experimental designs and randomised controlled trials (RCTs) to evaluate ALMPs [**Card et al., 2018**]. These techniques provide more robust causal inferences by addressing some of the limitations of the non-experimental studies, enhance the ability to draw causal conclusions by more effectively mitigating selection bias and endogeneity issues and offer stronger evidence of ALMP effectiveness at the individual level.

Collischon et al. [**2021**] used an instrumental variables approach to analyse administrative data from German establishments between 1999 and 2014. Their findings showed that job subsidies can negatively affect overall employment by crowding out non-subsidized jobs. **Caliendo et al.** [**2020**], using data from the participants of the German Start-Up Subsidy programme in 2011 and applying a difference-in-differences approach, found that start-up subsidies for unemployed individuals had uncertain economic effects, with lower survival and job creation rates compared to regular start-ups. In a follow-up study, **Caliendo and Tübbicke** [**2021**] suggested that stricter eligibility criteria for these subsidies could improve their economic impact.

Crépon et al. [**2013**] used randomised experiments to study the displacement effects of ALMPs in France. They discovered that these policies can be particularly ineffective in weak labour markets, as the displacement effects between job seekers can significantly reduce the aggregate employment effect. **Sorensen** [**2016**] used a randomised controlled trial of an early effort in ALMP programmes in Denmark to analyse distributional effects on post-unemployment earnings. The study found that providing early job search assistance during an unemployment spell benefits unemployed workers in the short term.

Card et al. [**2010**, **2018**] conducted meta-analyses of microeconomic studies on ALMP policies, including their design and delivery systems, spanning research from 1995 to 2014. The analyses made it possible to examine the effects of ALMPs and provide valuable insights into individual-level outcomes based on the sign and significance of these effects. Their results suggest that training and private sector employment programmes are generally effective in influencing the probability of employment, particularly in the medium and long term, but they show negligible short-term effects. Job search assistance demonstrates a positive influence in both the short and long term, while public work schemes have not proven effective. For all types of active measures, the design, targeting and policy implementation are crucial for their success [**ILO, 2016**].

However, the major limitation of the micro-level evaluations is their inability to capture the net impact of ALMPs on the overall labour market, especially considering substitution, displacement and other indirect effects.

Macroeconomic studies on ALMPs

Macroeconomic studies offer a broader perspective by examining the impact of ALMPs on labour market indicators, first of all on unemployment, and economic indicators which are closely linked to economic growth, i.e., GDP or multifactor productivity. A foundational work by **Layard et al.** [**2009**] examined the influence of ALMPs on the structural unemployment rate and suggested that ALMPs could reduce long-term unemployment.

However, there is no consensus on the overall impact of ALMPs on unemployment rates. For instance, descriptive OECD studies [**OECD, 1993**, **2015a**] produced inconclusive results about the effects of these policies on employment. **Estevão** [**2003**], using an OLS approach across 15 industrial countries, found that ALMPs positively affected business sector employment in the 1990s, but not in the late 1980s. **Oesch** [**2010**] analysed ALMP effectiveness using OLS regressions for 21 OECD countries and concluded that ALMP investments lower the unemployment rate of low-skilled workers. **Bassanini and Duval** [**2006a**] analysed data from 20 OECD countries between 1982 and 2003 using an instrumental variable approach. They studied the effects of ALMPs on unemployment from a cross-country perspective and concluded that some ALMPs, such as labour market training, were associated with lower unemployment.

Murtin and de Serres [2014] used a two-stage instrumental variable approach to assess the effectiveness of labour market policies on the unemployment rate for 11 OECD countries from 1985 to 2007. They discovered that ALMPs increase labour market tightness, as measured by the vacancy-to-unemployment ratio. **Escudero [2018]** conducted a panel data analysis of 31 OECD countries, including some transition economies, from 1985 to 2010. The study found that ALMPs positively impact labour market outcomes by reducing unemployment and increasing both employment and participation rates. In contrast, **Baker et al. [2005]**, using cross-country correlations between unemployment and ALMP measures as five-year averages for the 1980s and 1990s for 20 OECD countries, found an insignificant impact of ALMPs on labour market outcomes.

Wapler et al. [2022] emphasised the importance of regional differences in unemployment levels when configuring ALMPs. Using a system GMM approach, they found that in regions with low unemployment and a high number of vacancies per unemployed person, participants are more likely to find jobs as their employability improves. Conversely, in regions with high unemployment, where labour markets are sluggish, firms have greater bargaining power over job seekers and public employment services, making it harder for participants to secure employment. **Irandoust [2023]** analysed data from nine developed countries between 1991 and 2020, using the bootstrap panel Granger causality approach. The study found that ALMP expenditures were more effective in reducing unemployment among women compared to men.

Few studies have examined the impact of ALMPs on gross value added (GVA) or its components. **Bouis et al. [2012]** used a panel autoregressive model to examine the impulse responses of output to ALMP expenditures, finding that higher overall spending had a negative or insignificantly positive impact on short- to medium-term output. **Sakamoto [2020]**, using OLS analysis on data from 17 OECD countries from 1980 to 2008, found that ALMP expenditures are associated with increased multifactor productivity and GDP growth, which supports the reasonability of implementing the social investment approach to ALMP expenditures. **Bação et al. [2024]** used a PVAR model to analyse annual data from 36 OECD countries between 1995 and 2017. Their findings indicate that ALMP spending is the most effective form of social expenditure, increasing GDP while reducing inequality. However, **Cammeraat [2020]** analysed a panel data set of 22 EU countries from 1990 to 2015 using an OLS approach and found no significant impact of ALMP spending on GDP or the GINI coefficient. **Lehmann and Wohlrabe [2013]** employed an autoregressive distributed lag model to assess the influence of fiscal policy diversity on the sectoral GVA in Germany, while **Marcu et al. [2014]** used an OLS approach with financial data to emphasise the importance of considering the sectoral GVA structure in macroeconomic analyses.

To date, studies have not distinguished between the impact of ALMP spending on corporations versus employees, the two main beneficiaries of state expenditures, which could be crucial for understanding the overall economic effects of ALMPs. Additionally, the impact of ALMPs varies over the short, medium, and long term [**Card et al., 2010**, **2018**], highlighting the need to view them as social investments with effects that differ across these time spans.

Data

Dependent Variables

The dependent variables in our study are total GVA, corporate sector GVA, and employees' GVA (employees' compensation). These variables are calculated on a per-employee basis and presented in logarithmic form. Both the corporate-sector GVA and employees' GVA indicators are used to completely deliberate the effects of ALMPs in the model, following the proposed investment approach to ALMP policy implementation.

Independent Variables

Our empirical analysis of the impact of ALMPs on GVA and its components is based on ALMP expenditure data. According to the standard classification in the OECD/Eurostat database [**OECD, 2023**], ALMP expenditures aim to increase or secure employment and enhance employees' earning potential. ALMP expenditures are categorised into six programmes: public employment service and administration, training, employment incentives, supported employment and rehabilitation, direct job creation, and start-up incentives. These expenditures are measured as a percentage of GDP.

Although detailed studies on the impact of ALMP spending on GVA are scarce, ALMP expenditures can have both positive and negative effects on GVA. On the positive side, ALMPs can boost national economic growth by increasing average productivity. They help employees find jobs better suited to their qualifications and experience, or they promote skill generation and human capital development. However, expanding ALMP policies requires financing, which could negatively impact national GVA by limiting financial resources for more productive policies, necessitating higher taxes, or reducing the job search efforts of the unemployed.

We collected annual public spending data for each programme from the "OECD Public Expenditure on LM Programs by Categories" database, covering the period from 2003 to 2019. The sample includes 29 OECD countries[1] (Table A1).

Control Variables

Other control variables include the logarithm of lagged GDP per capita, terms of trade,[2] inflation, real interest rates, Labour Market Regulations Index (LMRI), and the Economic Freedom Index (EFI). Data for GDP per capita, terms of trade, inflation, and real interest rates come from the OECD/Eurostat database [**OECD, 2023a**, **2023b**]. Data for the LMRI and EFI are sourced from the Fraser Institute [**Fraser Institute, 2023a**, **2023b**].

GDP per capita is included as a macroeconomic variable, as more economically developed countries generally have a higher per-employee GVA. Thus, a positive relationship between GDP per capita and GVA is expected.

Previous studies show that inflation can either negatively or positively influence economic performance. **Barro** [**2013**] found that both high and low inflation rates negatively impact economic growth. **Feldmann** [**2013**] argued that high inflation rates distort price signals and relative prices, hampering efficient resource allocation. Even at low levels, inflation increases can adversely affect the economy by causing price distortions that reduce market effectiveness.

Institutional factors influence employee compensation, considered as employees' GVA in our model. Therefore, the LMRI and EFI are included. The LMRI measures labour market flexibility; higher values indicate less restrictive regulations, which should positively impact total GVA through more effective labour resource allocation. The EFI, which considers government size, legal structure, property rights protection, and regulations on credit, labour, and business, stimulates economic growth and increases total GVA.

A detailed explanation of the definitions and sources of all data used in the empirical analysis is displayed in Table A2. The summary statistics of the variables used in the empirical estimations are presented in Table A3.

Methodology

The empirical examination of the impact of ALMP expenditures on total GVA and its components (corporate sector GVA and employees' GVA) uses data from a sample of 29 OECD countries (see Table A1) for the period 2003–2019.

1 The OECD dataset does not include Greece data for 2011 and 2012, and United Kingdom data from 2012 onwards.
2 Terms of trade are defined as the ratio between the index of export prices and the index of import prices.

Model Specification

The empirical estimation is completed with unbalanced panel data to fully utilise the available information for the variables of our interest. The baseline model to estimate is:

$$lnGVA_{it} = \alpha + \beta_1 ALMP_{it} + \beta_2 ALMP_{it-1} + \beta_3 X_{it,t-1} + \beta_4 T_t + \beta_5 C_t + \varepsilon_{it} \quad (1)$$

where $lnGVA_{it}$ is the logarithm of the gross value added per person employed in country i and year t; α is a constant; $ALMP_{it}$ and $ALMP_{it-1}$ are the independent variables representing the ALMP expenditures in country i in year t and $t-1$; X_{it} is the vector of control variables; T_t represents year fixed effects; C_t are country fixed effects; and ε_{it} is the error term.

Estimation Method

We employ a fixed effects panel estimation approach to calculate our baseline model, selected based on the Hausman test. The Hausman test statistics and corresponding p-values are displayed in the results tables (see Tables A4–A6). To test the potential endogeneity of ALMP spending, we applied the **Riju and Wooldridge [2019]** approach for unbalanced panels using two instruments. The first instrument is the lagged value of the corresponding ALMP as suggested by [**Münich, Svejnar, 2007**]. The second instrument is the Cabinet composition (Schmidt index) from **QoG [2024]**, which ranges from 1 to 5 depending on the dominance of right-wing or left-wing parties in the Cabinet [**Escudero, 2018**]. The results of the endogeneity test indicated that ALMP spending can be treated as exogenous in the model specified by equation (1). These results are presented in Table A7. However, considering the theoretical possibility that ALMP spending might be endogenous, we also included the lagged value of ALMP spending in our model specification, because it takes time for such expenditures to have a positive macroeconomic effect.

While our methodology, including the use of instrumental variables, strengthens our results, some limitations remain. First, the chosen instruments may not fully eliminate endogeneity, potentially biasing our estimates. Second, the one-year lag captures medium-term effects, but does not completely reflect the long-term impacts of ALMPs, possibly underestimating their effects. Future research could address these issues by exploring longer lag structures or dynamic models. These limitations should be considered when interpreting the results, as they highlight areas for further research to deepen understanding of the relationship between ALMP spending and GVA.

Hypotheses and Objectives

Our econometric model aims to verify the investment approach to ALMP policy implementation. We hypothesise that public ALMP spending will have a negative short-term effect and a positive lagged effect on GVA. We consider the influence of ALMP expenditures on GVA in period t as the short-term effect, while the influence of ALMP expenditures on GVA in period t – 1 as the lagged effect. Additionally, the investment approach suggests that ALMP expenditures will primarily affect the corporate sector (employers) rather than employees. Consequently, we test the following hypotheses:

Hypothesis 1: ALMP expenditures have a negative and significant short-term effect on the economy's GVA and a positive and significant lagged effect.

Hypothesis 2: ALMP expenditures have a positive and significant effect on the corporate sector's GVA and a small or insignificant positive effect on employees' GVA (employee compensation) in the next period, while negatively impacting both the corporate sector's and employees' GVA in the short-term period.

Estimation Results. We estimate equation (1) using the fixed effects panel model for the period 2003–2019 across a panel of 29 OECD countries. The results of the empirical estimation are presented in Tables A4 to A6.

Results

Tables A4–A6 present our estimation results (see Appendix A). Table A4 displays estimates for the total GVA per employed person, while Tables A5 and A6 present results for the corporate-sector GVA per employed person and employees' GVA per employed person (compensation of employees) respectively. These results are discussed in Sections 5.1 and 5.2.

Estimation results for total GVA (Hypothesis 1)

The estimation results for total GVA, summarised in Table 3, confirm Hypothesis 1 and validate the investment approach to ALMP policy implementation. Most ALMP spending has a negative and significant short-term effect and a positive and significant lagged (delayed) effect on total GVA.

Table 3. Summary estimation results for total GVA

Effects	PESA	TRA	EIN	SER	DJC	SUI
Short-term effects	−0.726**	−0.279*	−0.027**	−0.082	−0.299*	−0.036
Lagged effects	0.814***	0.360**	−0.002	0.221	0.545***	0.609*

Notes: Full results are presented in Table A4. Significance: ***: 1 percent; **: 5 percent; *: 10 percent.

Source: Authors' own elaboration based on OECD [**OECD, 2023b**] and Fraser Institute data [**Fraser Institute, 2023a**; **2023b**].

Short-term effects

The significant negative short-term effect of ALMP expenditures on national GVA is observed for PESA, TRA, EIN, and DJC. The other types of ALMP policies, namely the SER (supported employment and rehabilitation) and the SUI, also show negative but insignificant short-term effects.

Public Employment Services and Administration (PESA): PESA has a negative short-term effect on total GVA as they do not increase labour market demand or human capital. They can displace job opportunities without creating new jobs or skills, leading to a decline in GVA. While these services help reduce the duration of unemployment, they have two main shortcomings: they do not alter labour market demand or increase human capital. The positive impact on the targeted group can be offset by displacement effects; without creating new jobs, public employment services may simply shift job offers from other segments of the labour force, both unemployed and underemployed, to job seekers using these services [**Crépon et al., 2013**]. Additionally, PESA does not change the supply of skills in the workforce (e.g., through retraining). Since these services consume a large portion of ALMP expenditures without proportionately creating jobs or skills, increased spending may lead to a decline in the economy's GVA.

Training (TRA): TRA has a negative short-term effect as employees might earn less during training periods. This happens as some employees are not working while they acquire additional human capital [**Kluve, 2010**; **Card, Kluve, Weber, 2018**], which decreases total GVA correspondingly.

Employment incentives (EIN): EIN has a significant negative short-term effect, indicating that efforts to preserve unproductive jobs decrease GVA.

Direct job creation (DJC): DJC has a significant negative short-term effect, which can indicate a difficulty in finding employment after a subsidised work period. Participation in direct job creation programmes can signal to potential employers that the worker is difficult to place [**Card, Kluve, Weber, 2010**]. This difficulty adversely affects total GVA in the short term.

Lagged effects

ALMP expenditures have a significant positive lagged effect on national GVA for PESA, TRA, DJC and SUI. This delayed effect for SER is positive but insignificant, while the delayed effect for EIN is negative and also insignificant.

PESA: PESA has a positive lagged effect meaning that such expenditures improve labour market efficiency, positively influencing GVA in the next period.

TRA: TRA leads to an increased supply of skills and improves labour productivity; the economy benefits from the increased supply of skills resulting in higher GVA in the following year.

DJC: DJC has a positive impact on the economy's GVA in the next period. This indicates that the ALMP programme facilitates the retention of skills and experience among employees at risk of being laid off, thereby maintaining the total labour supply. This, in turn, benefits the economy in the following year.

Start-up incentives (SUI): SUI demonstrates a positive and significant lagged effect on total GVA. The reason for its insignificant short-term effect on total GVA is that most of these initiatives take more than a year to show positive economic results.

The analysis of the estimation results summarised in Table 3 supports the investment approach to ALMP policy implementation. ALMP expenditures have a positive influence on total GVA, but only in the next period. Therefore, governments can expect positive outcomes from ALMP policies in the years following their enactment. However, they should also consider the negative economic effect of these expenditures during the implementation stage.

Explanatory variables

We incorporate additional explanatory variables to assess the influence of various macroeconomic and institutional indicators on total GVA per employed person.

GDP per capita: A higher GDP per capita is generally associated with a higher total GVA per employed person. Our estimates show that the coefficients for GDP per capita are positive and statistically significant.

Terms of trade: Improvements in the terms of trade are expected to lead to an increase in total GVA. Our estimates indicate that the coefficients for terms of trade are positive and statistically significant.

Inflation: High inflation can result in an increased total GVA in nominal terms. Our estimates suggest that the coefficients for inflation are positive and statistically significant.

Real interest rate: High real interest rates can reduce investments, leading to a decline in total GVA. We find that the coefficients for real interest rates are statistically insignificant.

LMRI and EFI: Improvements in the Legal and Market Regulation Index (LMRI) and Economic Freedom Index (EFI) are expected to increase total GVA. However, our observations show that the coefficients for LMRI and EFI are statistically insignificant, likely because minor improvements in the already well-developed institutional environments of OECD countries do not significantly impact total GVA.

Estimation results for corporate-sector and employees' GVA (Hypothesis 2)

The estimation results for the corporate sector's GVA and employees' GVA, summarised in Table 4, confirm the reliability of Hypothesis 2 and validate the investment approach to implementing ALMP policies. As predicted by the investment approach, ALMP spending has a positive lagged effect and a negative short-term effect on the corporate sector's GVA. The lagged positive effect of ALMP expenditures on the corporate sector's GVA is higher than on employees' GVA, supporting the validity of Hypothesis 2.

Table 4. Summary estimation results for the corporate sector's GVA and the employees' GVA

Effects	PESA	TRA	EIN	SER	DJC	SUI
Short-term effects:						
– corporate sector's GVA	–1.200*	–0.607**	–0.030**	–0.226	–0.553*	–0.035
– employees' GVA	–0.156	0.104	–0.023**	0.050	0.057	–0.138
Lagged effects:						
– corporate sector's GVA	1.035***	0.580***	–0.018	0.332*	0.696***	0.979**
– employees' GVA	0.617***	0.138	0.044	0.147	0.376*	0.269

Notes: Full results are presented in Table A5. Significance: ***: 1 percent; **: 5 percent; *: 10 percent.

Source: Authors' own elaboration based on OECD [**OECD, 2023b**] and Fraser Institute data (**Fraser Institute, 2023a**; **2023b**).

Regarding employees' GVA (employees' compensation), a notable negative short-term effect is estimated only for EIN expenditures, while a significant positive lagged effect is observed for PESA and DJC expenditures.

Short-term effects

The significant negative short-term effect of ALMP expenditures on the corporate sector's GVA is observed for PESA, TRA, EIN, and DJC. The other types of ALMP policies, namely the SER and the SUI, also show negative but insignificant short-term effects. The significant negative short-term effect of ALMP expenditures on employees' GVA is observed only for EIN. The short-term effect for PESA and SUI is negative but insignificant, while the short-term effect for TRA, SER and DJC is positive and insignificant.

PESA: PESA expenditures have a negative significant short-term effect on the corporate sector's GVA. This can be explained by the fact that public employment services benefit employees directly, while the corporate sector bears the burden of current social taxes, thereby reducing its GVA.

TRA: TRA expenditures have a significant negative short-term effect on the corporate sector's GVA as unemployed individuals are not contributing to production while participating in training programmes. Additionally, when training is provided as on-the-job or alternate training, employees may not maintain full productivity during the training period, thereby reducing the corporate sector's GVA.

EIN: EIN expenditures have a significant negative short-term effect on both the corporate sector's and employees' GVA. This is not surprising as EIN is an expensive means of encouraging employment, particularly in the short run [**Card, Hyslop, 2005**]. Efforts to preserve unproductive jobs decrease total GVA, which is reflected in the reduction of both the corporate sector's GVA and employees' GVA.

DJC: DJC has a negative significant short-term effect on the corporate sector's GVA. This indicates that hard-to-place individuals who receive services from public employment programmes tend to have lower productivity, potentially replacing more efficient staff and thereby reducing the corporate sector's GVA.

Lagged effects

The significant positive lagged effect of ALMP expenditures on the corporate sector's GVA is observed for PESA, TRA, SER, DJC and SUI. EIN expenditures show an insignificant negative effect. The significant negative lagged effect of ALMP expenditures on employees' GVA is observed only for PESA and DJC. The lagged effect for all other ALMP expenditures is insignificant but also positive.

PESA: PESA expenditures have a positive and significant lagged effect on both the corporate sector's GVA and employees' GVA. However, the effect is greater on the corporate sector's GVA compared to the employees' GVA. PESA aids in restructuring the labour market and effectively allocating labour resources over the long term, thereby enhancing competition among the unemployed for vacancies offered by the corporate sector. This, in turn, elevates the effectiveness of the corporate sector and its GVA.

TRA: TRA expenditures have a significant positive lagged effect on the corporate sector's GVA. This suggests that companies benefit from hiring previously unemployed individuals who gained additional skills through public training programmes. These employees start producing added value in subsequent periods, which primarily benefits the employer, as such employees typically have limited bargaining power.

SER: SER has a significant positive lagged effect on the corporate sector's GVA. Such a policy should be viewed as the long-run instrument, requiring time for employees to restore their working capacity or acquire new skills. These improvements primarily benefit employers, who also receive tax relief and other state benefits.

DJC: DJC expenditures have a significant positive lagged effect on both the corporate sector's and the employees' GVA. However, the impact is greater on the corporate sector's GVA compared to the employees' GVA. This is largely because DJC participants typically comprise hard-to-place workers with lower bargaining power. Consequently, the value added generated by these employees predominantly accrues to the employer.

SUI: SUI have a significant positive lagged effect on the corporate sector's GVA. SUI increase the number of corporate entities within an economy, consequently boosting the corporate sector's GVA in the next period.

Explanatory variables

We incorporate additional explanatory variables to assess the influence of various macroeconomic and institutional indicators on corporate-sector and employees' GVA per employed person.

GDP per capita: A higher GDP per capita is generally associated with a higher corporate sector and employees' GVA per employed person. Our estimates show that the coefficients for GDP per capita are positive and statistically significant.

Terms of trade: Improvements in the terms of trade are expected to lead to an increase in corporate-sector and employees' GVA. Our estimates indicate that the coefficients for terms of trade are positive and statistically significant.

Inflation: High inflation can result in increased corporate-sector and employees' GVA in nominal terms. Our estimates suggest that the coefficients for inflation are positive and statistically significant.

Real interest rate: High real interest rates can reduce investments, leading to a decline in corporate-sector and employees' GVA. We find that the coefficients for real interest rates are statistically insignificant.

LMRI and EFI: Improvements in the LMRI and EFI indexes are considered to increase corporate-sector and employees' GVA. However, our observations show that the coefficients for LMRI and EFI are statistically insignificant, likely because minor improvements in the already well-developed institutional environments of OECD countries do not significantly impact corporate-sector and employees' GVA.

Although specific research on the effects of ALMP expenditures on total GVA or its components is lacking, there are studies examining the influence of ALMP spending on GDP and GDP growth [**Sakamoto, 2020**; **Bação et al., 2024**]. **Sakamoto** [**2020**] found that increased ALMP spending is associated with higher GDP growth. **Bação et al.** [**2024**] discovered that ALMP spending is the most effective type of social expenditure, boosting GDP while reducing national inequality. Our findings provide more detailed insights into the relationship between ALMP spending and macroeconomic outcomes, highlighting the economic impact of specific ALMP measures and helping to create more responsive labour market policies.

Conclusion

Our findings support the rationale behind the proposed investment approach to ALMP policy implementation. While the short-term effects of ALMP expenditures on total GVA are negative, the lagged effects remain positive. Importantly, the positive lagged effects outweigh the negative short-term effects, ensuring an overall positive impact of ALMP policy on the economy's GVA. The government can anticipate positive outcomes from ALMP spending in the years following programme enactment, while also considering the potential negative economic impact during the implementation phase. Public employment services and administration expenditures, along with start-up incentives, deliver the most significant positive lagged impact on total GVA.

The supplementary part of the suggested investment approach to ALMPs assumes that the effects of ALMP spending primarily benefit the corporate sector (employers) rather than employees. Our estimation results indicate that ALMP spending has a positive lagged effect and a negative short-term effect on the corporate sector's GVA, aligning with the investment approach. The lagged positive effect of ALMP expenditures on the corporate sector's GVA is greater than its effect on employees' GVA, supporting our second hypothesis. Most short-term and lagged effects of ALMP measures on the corporate sector's GVA are statistically significant. However, the effect of ALMP expenditures on employees' GVA is significant only in selected cases: employment incentives exhibit a negative short-term effect, while public employment services, administration expenditures, and direct job creation show a lagged positive effect. This leads to the conclusion that the corporate sector (employers) gains a larger share of the economic benefits from ALMP policies than employees.

The government should evaluate the results of ALMP policy implementation, acknowledging that the economic effect of such expenditures may be primarily realised in the following year. Given that the economic effects of ALMP policies differ between the corporate sector and employees, this variability can enable a more targeted and results-oriented approach to labour market policy.

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Appendix A

Table A1. List of OECD countries

Austria, Australia, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, New Zealand, Norway, Poland, Portugal, South Korea, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United States

Source: OECD [2024].

Table A2. Variables description and data sources

Variable	Definition	Measure	Source
Dependent variables			
Gross value added: Total	Total GVA is defined as output minus intermediate consumption per employed person.	Current US dollars, millions	OECD database, own calculations
Gross value added: Corporate sector	Corporate sector GVA is the sum of gross operating surplus of corporations, gross mixed income of unincorporated enterprises and other taxes less other subsidies on production per employed person.	Current US dollars, millions	OECD database, own calculations
Gross value added: Compensation of employees	Employees' GVA is defined as the total remuneration of employees and comprises of gross wages, salaries and the value of social contributions paid by employers per employed person.	Current US dollars, millions	OECD database, own calculations
Independent variables			
Public employment services and administration	Public spending on services, such as information and support services and other activities, such as the administration of labour market policy services measured as a percentage of GDP.	Percentage	OECD database
Training	Public spending on training programmes aimed for the labour force measured as a percentage of GDP.	Percentage	OECD database
Employment incentives	Public spending on recruitment incentives, employment maintenance incentives, and job rotation and job sharing measured as a percentage of GDP.	Percentage	OECD database
Supported employment and rehabilitation	Public spending on subsidies for the productive employment of persons with a permanently (or long-term) reduced capacity to work measured as a percentage of GDP.	Percentage	OECD database
Direct job creation	Public spending on programmes to create additional jobs measured as a percentage of GDP.	Percentage	OECD database
Start-up incentives	Public spending on programmes that encourage entrepreneurship as a percentage of GDP.	Percentage	OECD database
Control variables			
Gross domestic product per capita	Gross domestic product divided by midyear population.	Current US dollars	OECD database
Terms of trade	Ratio between the index of export prices and the index of import prices.	Index	OECD database
Inflation	Annual change in the consumer price index (CPI) defined as the change in the prices of a basket of goods and services that are generally purchased by specific groups of households.	Percentage	OECD database
Real interest rate	The long-term lending interest rate adjusted for inflation as measured by CPI.	Percentage	OECD database, own calculations
Labor Market Regulations Index	Labor Market Regulations Index is a composite index based on six measures of labour market institutions and is an unweighted average of these six measures and its value varies from 1–10.	Index	Fraser Institute

cont. Table A2

Variable	Definition	Measure	Source
Economic Freedom Index	Summary index from Economic Freedom of the World, scaled to take values between 0 (least free) and 10 (most free). The summary ratings of the index are calculated as the arithmetic means of the scores from five equally weighted areas: size of government; legal system and property rights; sound money; freedom to trade internationally; and regulation.	Index	Fraser Institute

Source: OECD [2023b]; Fraser Institute [2023a, 2023b].

Table A3. Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
Gross value added:					
Total	474	1 318 862.372	3 009 882.047	8 831.693	20 589 956.000
Corporate sector	474	614 955.945	1 351 114.739	4 477.280	9 129 975.000
Compensation of employees	474	703 906.427	1 662 342.834	4 153.109	11 459 981.000
Active labour market policies:					
Public employment services and administration	493	0.123	0.090	0.000	0.433
Training	493	0.151	0.141	0.000	0.683
Employment incentives	493	0.110	0.212	0.000	3.763
Supported employment and rehabilitation	493	0.079	0.133	0.000	0.978
Direct job creation	493	0.049	0.061	0.000	0.334
Start-up incentives	493	0.015	0.026	0.000	0.147
Gross domestic product per capita	493	38 702.740	23 288.880	4 805.927	123 234.300
Terms of trade	493	99.779	6.633	78.651	142.451
Inflation	493	1.858	1.779	−4.478	15.402
Real interest rate	493	1.510	2.395	−8.971	20.996
Labor Market Regulations Index	493	6.594	1.320	3.540	9.260
Economic Freedom Index	493	7.829	0.374	6.650	8.780

Source: Authors' own elaboration based on OECD [2023b]; Fraser Institute [2023a, 2023b].

Table A4. Regression results for total gross value added

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Active labour market policies:						
Public employment services and administration	−0.726** [0.320]					
Public employment services and administration (−1)	0.814*** [0.287]					
Training		−0.279* [0.158]				
Training (−1)		0.360** [0.138]				
Employment incentives			−0.027** [0.011]			
Employment incentives (−1)			−0.002 [0.073]			
Supported employment and rehabilitation				−0.082 [0.188]		
Supported employment and rehabilitation (−1)				0.221 [0.176]		
Direct job creation					−0.299* [0.169]	
Direct job creation (−1)					0.545*** [0.182]	

cont. Table A4

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Start-up incentives						−0.036 [0.202]
Start-up incentives (−1)						0.609* [0.313]
Control variables:						
LnGDP per capita (−1)	0.651*** [0.024]	0.658*** [0.025]	0.656*** [0.025]	0.651*** [0.025]	0.663*** [0.024]	0.647*** [0.025]
Terms of trade	0.003*** [0.001]	0.003*** [0.001]	0.003*** [0.001]	0.003*** [0.001]	0.003*** [0.001]	0.003*** [0.001]
Inflation	0.011*** [0.004]	0.012*** [0.004]	0.012*** [0.004]	0.013*** [0.004]	0.013*** [0.004]	0.011*** [0.004]
Real interest rate	0.001 [0.002]	0.001 [0.002]	0.001 [0.002]	0.001 [0.002]	0.001 [0.002]	−0.0001 [0.002]
Labor Market Regulations Index	−0.006 [0.013]	0.003 [0.012]	−0.001 [0.013]	0.0003 [0.013]	0.002 [0.012]	0.004 [0.012]
Economic Freedom Index	0.017 [0.043]	0.017 [0.041]	0.022 [0.041]	0.020 [0.041]	0.020 [0.040]	0.018 [0.041]
Constant	3.942*** [0.330]	3.780*** [0.329]	3.805*** [0.318]	3.865*** [0.320]	3.728*** [0.292]	3.891*** [0.331]
Observations	469	469	469	469	469	469
No. of countries	29	29	29	29	29	29
R-squared	0.829	0.829	0.824	0.824	0.828	0.825
Hausman Test Statistic (*p*-value)	269.90 (0.000)	88.80 (0.000)	866.23 (0.000)	68.69 (0.000)	27.26 (0.001)	32.42 (0.000)

Notes: Robust standard errors in square brackets. Significance: ***: 1 percent; **: 5 percent; *: 10 percent.

Source: Authors' own elaboration based on **OECD** [**2023b**]; **Fraser Institute** [**2023a**, **2023b**].

Table A5. Regression results for gross value added of corporate sector

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Active labour market policies:						
Public employment services and administration	−1.200* [0.602]					
Public employment services and administration (−1)	1.035*** [0.371]					
Training		−0.607** [0.290]				
Training (−1)		0.580*** [0.187]				
Employment incentives			−0.030** [0.013]			
Employment incentives (−1)			−0.018 [0.105]			
Supported employment and rehabilitation				−0.226 [0.137]		
Supported employment and rehabilitation (−1)				0.332* [0.181]		
Direct job creation					−0.553* [0.288]	
Direct job creation (−1)					0.696*** [0.226]	
Start-up incentives						−0.035 [0.273]
Start-up incentives (−1)						0.979** [0.466]

cont. Table A5

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables:						
LnGDP per capita (–1)	0.605*** [0.028]	0.615*** [0.065]	0.613*** [0.027]	0.608*** [0.028]	0.619*** [0.026]	0.599*** [0.028]
Terms of trade	0.004*** [0.001]	0.004 [0.001]	0.004*** [0.001]	0.004*** [0.001]	0.004** [0.001]	0.004*** [0.001]
Inflation	0.009 [0.006]	0.010* [0.006]	0.010* [0.006]	0.011* [0.006]	0.011* [0.006]	0.009 [0.006]
Real interest rate	0.001 [0.004]	0.003 [0.003]	0.001 [0.004]	0.001 [0.004]	0.002 [0.004]	–0.001 [0.004]
Labor Market Regulations Index	–0.009 [0.020]	–0.005 [0.017]	–0.009 [0.018]	–0.007 [0.017]	–0.006 [0.017]	–0.001 [0.017]
Economic Freedom Index	0.024 [0.058]	0.029 [0.056]	0.040 [0.055]	0.036 [0.055]	0.035 [0.055]	0.033 [0.055]
Constant	3.619*** [0.420]	3.436*** [0.426]	3.374*** [0.387]	3.442*** [0.393]	3.348*** [0.379]	3.509*** [0.406]
Observations	469	469	469	469	469	469
No. of countries	29	29	29	29	29	29
R-squared	0.732	0.734	0.720	0.720	0.726	0.725
Hausman Test Statistic (*p*-value)	45.67 (0.000)	571.56 (0.000)	35.05 (0.000)	44.90 (0.000)	37.33 (0.000)	37.71 (0.000)

Notes: Robust standard errors in square brackets. Significance: ***: 1 percent; **: 5 percent; *: 10 percent.

Source: Authors' own elaboration based on **OECD** [**2023b**]; **Fraser Institute** [**2023a**, **2023b**].

Table A6. Regression results for gross value added of compensation of employees

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Active labour market policies:						
Public employment services and administration	–0.156 [0.195]					
Public employment services and administration (–1)	0.617*** [0.218]					
Training		0.104 [0.148]				
Training (–1)		0.138 [0.128]				
Employment incentives			–0.023** [0.010]			
Employment incentives (–1)			0.044 [0.084]			
Supported employment and rehabilitation				0.050 [0.290]		
Supported employment and rehabilitation (–1)				0.147 [0.226]		
Direct job creation					0.057 [0.249]	
Direct job creation (–1)					0.376* [0.186]	
Start-up incentives						–0.138 [0.317]
Start-up incentives (–1)						0.269 [0.262]
Control variables:						
LnGDP per capita (–1)	0.697*** [0.024]	0.702*** [0.027]	0.698*** [0.028]	0.692*** [0.029]	0.707*** [0.025]	0.695*** [0.027]

cont. Table A6

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Terms of trade	0.002*** [0.001]	0.003*** [0.001]	0.002*** [0.001]	0.002*** [0.001]	0.002*** [0.001]	0.002*** [0.001]
Inflation	0.014*** [0.003]	0.016*** [0.003]	0.015*** [0.003]	0.016*** [0.003]	0.017*** [0.003]	0.015*** [0.003]
Real interest rate	0.002 [0.003]	0.001 [0.003]	0.002 [0.003]	0.002 [0.003]	0.002 [0.003]	0.001 [0.003]
Labor Market Regulations Index	–0.007 [0.013]	0.012 [0.012]	0.005 [0.012]	0.007 [0.011]	0.008 [0.010]	0.006 [0.012]
Economic Freedom Index	0.011 [0.042]	0.004 [0.039]	0.002 [0.041]	0.002 [0.041]	0.005 [0.035]	0.003 [0.040]
Constant	2.847*** [0.419]	2.694*** [0.421]	2.854*** [0.437]	2.903*** [0.434]	2.682*** [0.360]	2.873*** [0.424]
Observations	469	469	469	469	469	469
No. of countries	29	29	29	29	29	29
R-squared	0.843	0.843	0.839	0.840	0.844	0.839
Hausman Test Statistic (*p*-value)	75.22 (0.000)	15.13 (0.060)	207.78 (0.000)	197.38 (0.000)	132.89 (0.000)	166.96 (0.000)

Notes: Robust standard errors in square brackets. Significance: ***: 1 percent; **: 5 percent; *: 10 percent.

Source: Authors' own elaboration based on **OECD** [**2023b**]; **Fraser Institute** [**2023a**, **2023b**].

Table A7. Endogeneity test for ALMPs spending

Variables – Test Statistic (*p*-value)	Total GVA	Corporate sector's GVA	Employees' GVA
Public employment services and administration	0.703	0.966	0.646
Training	0.627	0.731	0.821
Employment incentives	0.869	0.776	0.639
Supported employment and rehabilitation	0.369	0.251	0.912
Direct job creation	0.529	0.483	0.565
Start-up incentives	0.393	0.692	0.282

Source: Authors' own elaboration based on **Riju, Wooldridge** [**2019**].