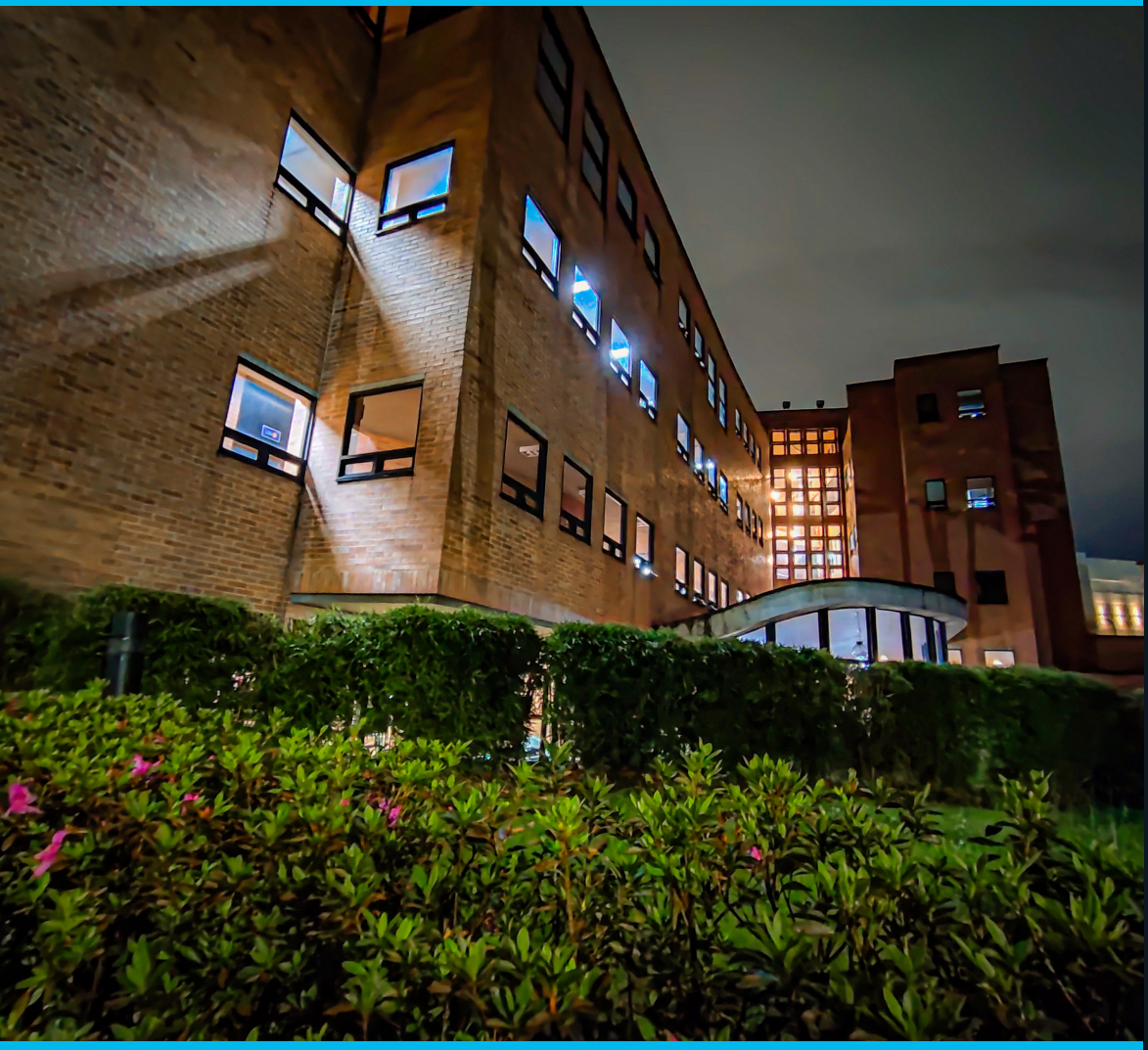
97

# CUADERNOS DE ECONOMÍA

ISSN 0121-4772



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**Cuadernos de Economía Vol. 45 No. 97 - 2026**


## UNIVERSIDAD NACIONAL DE COLOMBIA

# ARTÍCULO

# FDI AND POVERTY IN MEXICAN STATES (2010-2020)

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**Neme Castillo, O., & Chiatchoua, C. (2026). FDI and poverty in Mexican states (2010-2020).** ***Cuadernos de Economía, 45*****(97), 133-172.**

The paper identifies the Foreign Direct Investment (FDI) effects on poverty reduction at the state level in Mexico over the period 2010-2020, using a dynamic panel data model following the S-GMM methodology. Sensitivity of all variables to the poverty proxy variable used is observed. Differentiated effects on poverty are observed depending on the poverty proxy variable used. It is found that FDI tends to reduce moderate poverty, but increases extreme poverty. It is concluded that the economic model is characterized by generating moderate poor linked to FDI and extreme poor excluded from the benefits of FDI.

**Keywords:** Extreme poverty; FDI; poverty; public spending; sys-GMM.
**JEL:** F21, F63, H50, I32, J01.

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Suggested citation: Neme Castillo, O., & Chiatchoua, C. (2026). FDI and poverty in Mexican states (2010-2020). *Cuadernos de Economía, 45*(97), 133-172. https://doi.org/10.15446/cuad.econ.v45n97.107608

**Este artículo fue recibido el 3 de marzo 2023, ajustado el 19 de marzo de 2025 y su publicación aprobada el 25 de mayo de 2025.**

**Neme Castillo, O., & Chiatchoua, C. (2026). Inversión extranjera directa (IED) y pobreza en entidades federativas de México (2010-2020). *Cuadernos de Economía, 45*(97), 133-172.**

Este artículo identifica los efectos de la inversión extranjera directa (IED) en la reducción de la pobreza a nivel estatal en México durante el período 2010-2020, utilizando un modelo dinámico de datos de panel siguiendo la metodología S-GMM. Se observa la sensibilidad de todas las variables a la variable proxy de pobreza utilizada. Se observan efectos diferenciados sobre la pobreza según la variable proxy de pobreza utilizada. Se encuentra que la IED tiende a reducir la pobreza moderada, pero aumenta la pobreza extrema; entonces, el modelo económico se caracteriza por generar pobres moderados vinculados a la IED y pobres extremos excluidos de los beneficios de la IED.

**Palabras clave:** pobreza extrema; IED; pobreza; gasto público; sys-GMM.
**JEL:** F21, F63, H50, I32, J01.

# INTRODUCTION

The empirical literature on Foreign Direct Investment (FDI) recognizes that these flows generate long-term benefits for the countries involved, such as economic growth and development. According to Camacho and Bajaña (2020), Acosta et al. (2018), and Vásquez et al. (2024), FDI has positive effects on GDP, trade openness, country risk and exports in developing countries. However, other results, in one way or another, contradict the view that an increase in FDI can be important in improving economic growth or development according to Cerquera and Rojas (2020), and Elizalde et al. (2022).

Also, FDI contributes to the creation of jobs, the increase in public spending, the diversity of products, and the increase in tax collection. Moreover, the above implies that FDI contributes to poverty reduction in accordance with Robinson (2019), and results in access to foreign markets and spillovers of technology and knowledge by transnational companies that channel FDI, according to Quiñonez et al. (2018). Following this, Aderemi et al. (2023) conclude that FDI inflows have a positive effect on poverty reduction.

However, despite the clear benefits that, in theory, this should have, the evidence on the effects of this considerable influx of FDI on growth and reduction of inequality and poverty is not so encouraging in the Latin American region, according to Quiñonez et al. (2018). Additionally, Salifu and Salifu (2024) show that FDI and foreign aid have a negative effect on poverty reduction in the African countries studied. These results suggest that the level of FDI necessary to alleviate poverty has not been achieved and that foreign aid has not been adequately channeled.

In the particular case of Mexican economy, the literature has not explored sufficiently the relationship between FDI and poverty at federal entity level (Vaca et al., 2016), and tends to focus on aspects such as its determinants, or effects on growth, productivity, exports, inequality, and employment from a national or sectoral perspective, and to a lesser extent from a regional analysis.

For Villalobos (2023), in 2022, 46.8 million Mexicans suffer from multidimensional poverty (36.3% of the population), consisting of 37.7 million with moderate poverty (29.2%) and 9.1 million with extreme poverty (7.1%); In addition, 56.1 million suffer from income poverty (43.2%). The entities with the highest multidimensional poverty are Chiapas with 67.4%; Guerrero, 60.4%; Oaxaca, 58.4%; Puebla, 54%; Veracruz, 51.7%; and Estado de Mexico, 42.9%. These six entities, that concentrate 24 million people (55.6% of the total), are the same ones with the greatest extreme poverty (6.1 million people, representing 67.5% of the total), and simultaneously are the less attractive for foreign investment, except for Puebla. In contrast, entities with highest FDI attraction tend to face lower levels of poverty.

Therefore, Ayvar et al. (2023) recommend the development of public programs and actions that promote an adequate investment climate such as the Progresa-Oportunidades program and Programs for Well-Being. That is, state actions that allow the development of human capital, infrastructure and social stability.

Given the above, this document has the purpose to identify the effect of FDI on poverty at the state level in Mexico in the period 2010-2020, given the availability of data from CONEVAL, a source of state poverty data. Section 2 reviews the theoretical and empirical literature on the FDI-poverty link. Panel Section 3 describes the variables and the dynamic panel S-GMM econometric methodology given the data structure. The results and the discussion are presented in section 4. Finally, some reflections are presented. The document contributes to the analysis of FDI and particularly its effect on poverty reduction at the state level for Mexico.

## LITERATURE REVIEW: FDI-POVERTY RELATIONSHIP

FDI has direct and indirect effects on poverty within the host region, which are generated mainly through economic growth leading to improved living standards (Aderemi et al., 2023; Anetor et al., 2020; Do et al., 2021; Mbiankeu et al., 2020; Quiñonez et al., 2018). FDI is associated with complementary productive investments and with investments in public infrastructure (education, transportation, health) (Robinson, 2019). Also, as FDI drives economic growth, the local market expands (Camacho & Bajaña, 2020; Salifu & Salifu, 2024), offering new opportunities for the poor to earn income (Lascurain, 2018), that is, the demand for labour from FDI itself grows, from new FDI, complementary investments, public or private investment or even the informal market.

The effects of FDI on poverty depend on various factors, both the productive capitals and the recipient location. On the one hand, the magnitude of the effect is determined by the amounts and characteristics of FDI, associated with green investments, reinvestments, technological or labour intensity, industrial sector, tax exemptions, labour contracts, etc. (Xibao & Zhi, 2009). On the other hand, the economic, industrial, social, political, and governmental characteristics of the receiving place affect the scope of FDI (Elboiashi, 2015) — for example, local suppliers, tax collection from FDI and its local use, acceptance of FDI. Together, all these conditions influence poverty reduction through FDI. However, the direct effect of FDI on poverty reduction requires that the demand for labour largely favours the unemployed poor or people with low incomes (Ortega & Infante, 2016). When the poor find work in which they receive training, they become qualified work with the aspiration of higher income and higher standards of living, surpassing the poverty line (Sarisoy & Koc, 2012).

In addition, the World Bank (2019) considers individuals who receive less than one dollar a day as in conditions of extreme poverty, and those who receive less than two dollars a day as poor. In the case of Mexico, the National Council for the Evaluation of Social Development Policy (CONEVAL, 2018) considers that a person is in a situation of poverty when they have at least one social deprivation, and their income is insufficient to acquire goods and services that required to meet their basic needs. Whereas, a person is in extreme poverty situation if they

have three or more deprivations and simultaneously has an income below a minimum welfare line, which does not allow to acquire the necessary nutrients for a healthy life.

Thus, poverty is understood as the lack of economic opportunities, the lack of access to basic services such as education and healthcare, the lack of opportunities to participate in public decision-making processes, and the deprivation of social protection. In line with Sen (1999), maintaining or expanding these shortcomings would limit people's abilities to maximize their potential.

Then, the State, through public policies, must create an enabling environment so that individuals can access to adequate food for themselves and their families. It seems that, according to Abramo et al. (2019), exclusion from the labour market and employment in low-productivity sectors — in poorly aid and unprotected jobs — constitute a particularly worrying core in the chain of reproduction of poverty and inequalities. In this sense, FDI is a factor for job creation in the formal sector (Dao et al., 2023).

Based on the above, Campos et al. (2020) recommend the universalization of certain social programmes (such as Pension for Older Adults), and for them to be more effective in reducing poverty, it is required that transfers begin to show geographical progressivity — that is, beneficiaries in municipalities with the highest incidence of poverty receive a higher transfer compared to beneficiaries who live in other municipalities.

# METHODOLOGY AND DATA

A robust methodology is used for the analysis of dynamic panel data using an econometric model with fixed effects, estimated by the generalized method of moments (S-GMM). This approach is based on the work of Ángeles and Ramírez (2014), and seeks to address variability in value added across states, considering the existence of fixed effects, which are validated through auxiliary tests of fixed (FE) and random effects (RE), as well as the Breusch-Pagan Lagrange Multiplier (BPLM) test, which evaluates the random effects using the null hypothesis where the specific variance individual is equal to zero ($H_0$: $\sigma^2_u$=0). The S-GMM is conformed both by differential and level equations and by instrumental variables which controls for endogeneity. The proposed model includes a lagged dependent variable that allows for verification of the correct specification of the model and the possibility of autocorrelation. The general equation of the model is expressed as:

$$pov_{it} = \alpha_i + \gamma pov_{it-1} + \sum_{k=1}^{n} \beta_k X_{kit} + \eta_i + u_{it} \quad (1)$$

where *i* is the entity and *t* is the year; *X* represents a vector of explanatory variables grouped into four categories: production and globalization (*prodglob*), political (*pol*), public spending (*ps*), and infrastructure (*infra*); *pov* is approximated by

five different measures. The model is based in the literature review (see for example Anetor et al., 2020; Do et al., 2021; Khan et al., 2019; Topalli et al., 2021; Uttama, 2015).

The inclusion of the lagged dependent variable in the model implies that the error variable, *uit*, is correlated with the lagged regressor, γ. Thus, the use of the GMM method proposed by Arellano and Bover (1995) allows addressing this condition. By eliminating the individual effects associated with each federal entity, $\eta i$, the model is rewritten in first difference terms, allowing the correlation between the dependent variable and the error term to be controlled through the use of lagged instrumental variables. Formally:

$$pov_{it} - pov_{it-1} = \gamma(pov_{it-1} - pov_{it-2}) + \sum_{k=1}^{n} \beta_k (X_{kit} - X_{kit-1}) + (u_{it} - u_{it-1}) \quad (2)$$

Nevertheless, the assumption of strict endogeneity of regressors does not hold when the dependent variable is included simultaneously in the right side of the equation (Bun & Windmeijer, 2010). Therefore, the GMM estimator in the first difference is followed, with the lagged endogenous variables as instruments, which allows controlling the endogeneity of the lagged dependent variable.

Moreover, this estimator may exhibit bias in finite samples, as well as low precision (Blundell & Bond, 1998), problems attributed to the weakness of the instruments due to the variability of individual effects compared to the variability of errors (Blundell et al., 2012). To address these limitations, Blundell and Bond (1998) propose a system of equations that combines moment conditions for the differenced and level models, known as S-GMM. Both, level and first differences equations are estimated through a set of instrumental variables. This methodology significantly improves precision and reduces bias in small samples (Blundell & Bond, 2000).

The methodology also includes the specification tests which assess the consistency of the S-GMM estimator. These include the Hansen test for overidentifying restrictions, which assesses the joint validity of the instruments in a context of heteroskedasticity in the error distribution.[1] The Hansen difference test, which compares the Hansen statistics of the GMM and the S-GMM.[2] Lastly, the Arellano-Bond autocorrelation test is performed to determine the existence of first- and second-order autocorrelation, ensuring the consistency of the GMM estimator.

However, as the standard errors of the two-stage S-GMM estimator for finite samples may show a downward bias, the estimate follows the Windmeijer (2005)

[1] The null hypothesis states that the overidentifying restrictions are valid.

[2] The test operates under the null hypothesis of joint validity of a subset of instruments and is asymptotically distributed as a $\chi^2$ with *n* degrees of freedom equal to the additional instruments.

correction proposal. This methodology is asymptotically more efficient than the one-stage S-GMM estimator (Windmeijer, 2005). Likewise, following Roodman (2009), by including Windmeijer's corrected standard errors and using the "collapse" code, small sample characteristics are controlled, thus obtaining a more robust estimate, limiting the number of instruments and avoiding specification errors.

Similarly, the document seeks to establish how poverty is determined or varies with a set of variables that include productive, political, social, and infrastructure aspects. Since they follow different processes, the analysis considers the endogenous, exogenous or predetermined nature of each variable. In general terms, an exogenous variable is determined outside the model, that is, it is not related to the rest of the independent variables and, therefore, there is no correlation between the errors of the variable and those of the model ($Cov[x_1,\varepsilon]=0$); an endogenous variable is determined within the model, that is, there is bidirectional causality ($Cov[x_1,\varepsilon]\neq 0$); and a (weakly exogenous) default variable is determined outside the model and before the current time, so it is not correlated with contemporary or future errors, but may be correlated with past errors ($Cov[x_{1s},\varepsilon_t]\neq 0$, with *s* and *t* being different time periods).

In addition, given the heterogeneity between the states, individual effects are considered. To do this, a regional dummy variable, *dfn*, is included. This allows testing whether regional effects, associated with the attraction of foreign capital, show a difference between the entities of the northern border and the rest of them. Specifically, $dfn_{it}=1$ for the *i-th* state entity located on the northern border and 0 if it is not.

Alternatively, to maintain the individual effects between states, dichotomous variables are added to the model, so 32 artificial variables are created with the specification, $d_{it}=1$ for the *i-th* entity and 0 if it is not; where $i$ = Aguascalientes, Baja California, Baja California Sur, ..., Zacatecas, and $t$ = 2008, 2010, ..., 2020.

It is also explored whether the coefficients of the *fdi* variable vary between entities, so they are considered interactive variables disaggregated for each state for the variable associated with foreign investment. Specifically, interactive dichotomous variables are constructed that result from multiplying each dichotomous variable by the explanatory variable *fdi*, that is, $dint\_{it}=d_{it}*fdi_{it}$. Dummy, dichotomous, and interactive variables are used alternatively.

The analysis is for the period 2008-2020, with biannual intervals, based on the availability of data at the state level. Following the literature, the estimation uses variables classified in two groups. The first one consists of five poverty indicators (*pov*) from CONEVAL: the percentage of the population in total (*plp*), moderate (*plmp*), and extreme (*plep*) poverty, as well as the percentage with incomes below the poverty (*pibipl*) and extreme (*pibiepl*) poverty lines. Unlike traditional approaches that define poverty as the lowest quintile of the income distribution (as in Dollar & Kraay, 2004) or that use proxy variables such as GDP per capita, the infant mortality rate, or household consumption (as in Magombeyi & Odhiambo,

2017), this study adopts a multidimensional approach based on direct poverty indicators. Table 1 shows the detailed definition and statistical analysis of the variables considered.

Given the documented persistence of poverty in Mexico (Canto, 2019; CONEVAL, 2015; Iniguez & Kurosaki, 2018; Millán, 2018; Rodríguez, 2016; Sánchez & Risso, 2024), this model incorporates the lagged dependent variable. Andrade et al. (2017) argue that poverty, in the Mexican context, shows a tendency towards self-perpetuation, maintaining its presence even in the face of wealth generation. Therefore, it is assumed as a hypothesis that poverty significantly influences its own behaviour over time.

The second set of variables, at the state level, seeks to explain the variability of poverty, and includes four dimensions (see equation 1). Production and globalization (*prodglob*) considers: *i*) productive specialization (*prospe*), measured as the ratio between the GDP of the primary sector and the total GDP of the federal entity; *ii*) the total number of temporarily insured workers (*temp*), which represents people temporarily working — affiliated in the Mexican Social Security Institute (IMSS) — in urban and rural areas; *iii*) foreign direct investment (*fdi*), which includes new investments, reinvestment of profits, and transactions between companies; and *iv*) international remittances (*rem*), which represent the total amount of monetary transfers sent from abroad to beneficiaries in the Mexican territory.

The political dimension (*pol*) collects the institutional quality or governmental stability (Perera & Lee, 2013). According to Tebaldi and Mohan (2010), low institutional quality affects poverty through market inefficiency and misallocation of resources; whereas Kouadio and Gakpa (2022) state that the overall improvement in the quality of institutions contributes significantly to reducing poverty. Paraphrasing Assadzadeh and Pourqoly (2013), institutional quality and corruption are negatively related. Hence, an increase in corruption translates into government inefficiency, discouraging private investment, employment, and growth — and, as a result, the poverty level can grow. Corruption interferes with central government functions, such as allocating resources, stabilizing the economy, and redistributing income (Oliveira et al., 2022). In this sense, Rahayu and Widodo (2012) argue that corruption directly affects the poor because it increases the prices of public services, reduces the offer, quality, and access to public services (healthcare, education, water, sanitation, etc.). In addition, Ndikumana (2006) stablishes that corruption deepens poverty because it reduces pro-poor public spending, reinforces income inequality, and distorts public expenditure allocation. This factor is approximated by the perception of corruption (*corr*), measured as the percentage of the population aged 18 and over in urban areas of 100.000 inhabitants or more that considers this as a major problem in their entity.

While the literature recognizes that perception-based corruption measures have limitations, Charron (2016) establishes a strong coherence between reported actual corruption and citizen perceptions of corruption. In any case, corruption, as a theoretical concept, has been defined by scholars based on their experience,

orientations, perceptions, environments, and the factor of time (Aliu, 2010). Thus, corruption perceptions are linked to more objective measures of this phenomenon.

The particular group of public spending (*ps*) is directly related to poverty reduction, and is approximated using different measures of social spending (Cammeraat, 2020). First, public spending (*pitas*) is defined as the sum of public investment (public works, productive projects, and promotion actions) and transfers, assignments, subsidies and other public aids. Second, participations to federal entities of Branch 28 (*psbr*28) are resources assigned to states and municipalities in the terms established by the Fiscal Coordination Law (LCF) and the Adherence Agreements to the Fiscal Coordination and Administrative Collaboration System in Federal Fiscal Matters. These monetary resources are allocated to states with high economic activity based on the redress principle. Branch 28 is characterized as a non-programmable expenditure. For Garza (2023), the lack of strong economic growth, the little progress in improving income distribution, and the limited fiscal resources devoted to antipoverty programmes and social expenditure have hampered progress toward poverty reduction in the last three decades.

Third, federal contributions for federal entities and municipalities for Branches 25 and 33 (*psbr2533*), which includes resources to strengthen their capacity to attend demands in education, health, basic infrastructure, financial strengthening, and public security, based on what is established in the LCF, plus the resources of the SEP in salary and economic forecasts for the educational spending funds of Branch 33. Following the compensatory principle, additional resources are provided to entities with low economic activity and low revenue collection. Branch 33 is considered as a programmable expenditure. Rodríguez et al. (2020) show a positive, albeit modest, effect of the FAIS (part of the *rr2533*) on average household income, although they find that it does not have a significant impact on extreme and moderate monetary poverty.

Lastly, federal spending of the Prospera social inclusion programme including operating costs (*prospr*)[3]. In particular, conditional cash transfer programmes (CCTPs) are a strategy primarily aimed at poverty reduction, which has become the backbone of social protection in most countries in Latin America (Vásquez & Uribe, 2019). This implies that the state is the manager of public actions and

[3] Prospera is a conditional cash transfer (CCT) programme in Mexico (in effect from 2014 to 2018) that stems from its predecessors, the Oportunidades Human Development Program (2002 to 2013) and the Education, Health, and Nutrition Program (Progresa) (1997 to 2001) (Dávila, 2016). The programme aims to improve the education, health, and nutrition conditions of poor families in highly marginalized settings in Mexico by implementing actions that improve access to food, health, and education, as well as other dimensions of well-being, in order to help break the intergenerational cycle of poverty. The programme Prospera was replaced by a set of three scholarship programmes, aimed at different educational levels: "Benito Juárez Basic Education Scholarship Program for Welfare"; "Universal Scholarship Program for Upper Secondary Education Students", and "Young People Writing the Future Program to grant scholarships to higher education students", administered by the Benito Juárez National Coordination of Scholarships for Welfare (Rodríguez, 2020). Therefore, for the year 2020, the data corresponding to these programmes are used.

resources for social protection targeted at the poorest. Empirical evidence on the effect of CCTPs does not show a clear consensus. Vásquez and Uribe (2019) summarize that, while various studies point to the positive contribution of these programmes in improving living conditions, a significant portion of the literature indicates that they have not resolved structural inequality or significantly impacted the intergenerational reproduction of poverty.

In the specific case of Mexico, Aguilar et al. (2019) argue that Prospera has been positive in terms of durable assets and reduced food vulnerability, where young adult beneficiaries of the programme appear to be moving up the education, asset, and income ladder. However, Beltrán and Delgado (2023) argue that while these types of monetary transfers have a positive impact on Mexican households, they also hide the problem of low wages.

Finally, infrastructure dimension (*infra*) has direct links to poverty through economic growth, productivity, and income options of the regions (Setboonsarng, 2006). Specifically, according to Ali et al. (2015) road transport infrastructure reduces the probability of suffering from multidimensional poverty. Chotia and Rao (2017) also affirm that infrastructure development and economic growth reduce poverty in both long run and short run. For Mexico, Salgado (2015) estimates that for every additional kilometre (km) of highway (km/100 $km^2$) poverty decreases, on average, in 0.4 percentage points. It is approximated by the road density (*rd*) length of the total road network (paved, surfaced, dirt roads and improved gaps) per 1000 inhabitants.

The variables are considered in real terms (2018 = 100), and as usual they are transformed to logarithms. Coefficients of all the variables with a negative sign are expected, which indicates that they contribute to the reduction of state poverty.

The Social Deprivation Index considers six indicators of social deprivation: educational backwardness, access to health services, access to social security, access to food, housing quality and spaces, basic housing services. The food basket is the set of foods whose value allows building the line of minimum well-being, determined according to the consumption pattern of a group of people who, with it, satisfy their energy and nutrient requirements. New investments are FDI associated with: initial investments by foreign natural or legal persons when establishing themselves in the country; contribution to the capital stock of Mexican companies (initial or increases) by foreign investors; transfers of shares by Mexican investors to direct investors; and initial amount of the consideration in the trusts that grant rights over the FDI.

The reinvestment of profits is the part of the profits that is not distributed as dividends and that represents an increase in the capital resources owned by the foreign investor. Intercompany accounts are debt transactions between Mexican companies with FDI participation in the capital stock and other related companies abroad. Public investment is public works in public domain assets, public works in own assets, and productive projects and promotion actions. The transfers,

**Table 1.**
Definition of variables and descriptive statistics

| Dimensión | Variable | Nombre | Descripción | Observaciones | Media | Desv. Est. | Mín. | Máx. |
|---|---|---|---|---|---|---|---|---|
| POB | *psp* | Población en situación de pobreza (% de la población total) | Porcentaje de personas con al menos una carencia social dentro del Índice de Privación Social e ingreso insuficiente para adquirir los bienes y servicios para satisfacer necesidades alimentarias y no alimentarias. | 224 | 3,715 | 0,332 | 2,894 | 4,363 |
| | *pspm* | Población en situación de pobreza moderada (% de la población total) | Porcentaje de personas pobres pero no pobres extremos. Es la diferencia entre la incidencia de la población en pobreza menos la de la población en pobreza extrema. | 224 | 3,513 | 0,247 | 2,808 | 3,959 |
| | *pspe* | Población en situación de pobreza extrema (% de la población total) | Porcentaje de personas que tiene tres o más carencias sociales y que, además, se encuentra por debajo de la línea de bienestar mínimo. | 224 | 1,828 | 0,832 | -0,357 | 3,656 |
| | *piilpi* | Población con ingreso inferior a la línea de pobreza por ingresos (% de la población total) | Porcentaje de la población con ingreso menor al valor monetario de una canasta de alimentos, bienes y servicios básicos (canasta alimentaria básica más canasta no alimentaria). | 224 | 3,885 | 0,256 | 3,174 | 4,401 |
| | *piilpei* | Población con ingreso inferior a la línea pobreza extrema por ingresos (% de la población total) | Porcentaje de la población con ingreso menor al valor monetario de una canasta alimentaria básica. | 224 | 2,688 | 0,571 | 1,194 | 3,930 |

(*Continued*)

| Dimensión | Variable | Nombre | Descripción | Observaciones | Media | Desv. Est. | Mín. | Máx. |
|---|---|---|---|---|---|---|---|---|
| PROGLO | *ep* | Participación de las actividades primarias en el PIB estatal (%) | Porcentaje de participación de las actividades del sector primario en el PIB estatal. | | -3,400 | 1,072 | -7,867 | -2,002 |
| | *tate* | Trabajadores Asegurados totales eventuales (personas) | Personas trabajadores asegurados en el IMSS eventuales urbanos y en el campo. | 224 | 10,852 | 0,798 | 9,077 | 13,045 |
| | *tied* | Total de IED (millones de pesos) (constante 2018=100) | Suma total de nuevas inversiones, reinversión de utilidades y cuentas entre compañías. | 224 | 15,450 | 3,655 | -15,981 | 18,822 |
| | *rem* | Remesas (millones de pesos) (constante 2018=100) | Cantidad monetaria proveniente del exterior, transferida a través de empresas y originada por un remitente (persona física residente en el exterior) para ser entregada en territorio nacional a un beneficiario (persona física residente en México). | 224 | 15,953 | 1,081 | 12,866 | 18,196 |
| GP | *gp* | Gasto público (millones de pesos) (constantre 2018=100) | Suma de Inversión pública y Transferencias, asignaciones, subsidios y otras ayudas. | 224 | 16,915 | 0,638 | 15,522 | 19,020 |
| | *rr28* | Presupuesto del Ramo 28 (millones de pesos) (constante 2018=100) | Son las participaciones a entidades federativas y municipios en los términos establecidos (Ramo 28), canalizados a través de los fondos: General de Participaciones, de Fomento Municipal Impuesto Especial sobre Producción y Servicios, de Fiscalización, de Compensación, de Extracción de Hidrocarburos, de Compensación del Impuesto sobre Automóviles Nuevos. | 224 | 16,468 | 0,759 | 14,898 | 18,565 |

(*Continued*)

| Dimensión | Variable | Nombre | Descripción | Observaciones | Media | Desv. Est. | Mín. | Máx. |
|---|---|---|---|---|---|---|---|---|
| GP | *rr2533* | Presupuesto de los Ramos 25 y33 (millones de pesos) (constante 2018=100) | Son las aportaciones federales para entidades federativas y municipios (Ramo 33) para fortalecer su capacidad de respuesta y atender demandas de gobierno en los rubros de: educación, salud, infraestructura básica, fortalecimiento financiero y seguridad pública, programas alimenticios y de asistencia social e infraestructura educativa. | 224 | 16,521 | 0,677 | 14,981 | 18,207 |
| | *prospr* | Prospera. Programa de Inclusión Social (millones de pesos) (constante 2018=100) | Gasto federal del Programa de Inclusión Social (PROSPERA). Los datos incluyen costos de operación del Programa. | 224 | 13,647 | 0,958 | 11,417 | 15,646 |
| POL | *corr* | Corrupción (porcentaje de la población) | Percepción sobre los problemas más importantes en la entidad federativa. Población de 18 años y más que habita en áreas urbanas de cien mil habitantes. | 224 | 3,911 | 0,137 | 3,510 | 4,241 |
| INFRA | *dcp* | Densidad carretera (kms por cada 1000 habitantes) | Longitud de la red carretera total expresada en términos de la población. Incluye carreteras pavimentadas, revestidas, de terracería y brechas mejoradas. | 224 | 1,127 | 1,140 | -4,634 | 2,253 |

Source: Own elaboration based on information from CONEVAL, IMSS, and INEGI.

assignments, subsidies and other aids are assignments destined directly or indirectly to the public and private sectors, organizations and parastatal companies and supports as part of their economic and social policy. The variables are normalized using the natural logarithm.

# RESULTS AND DISCUSSION

Table 2 presents the results of the tests applied to the fixed effects model. The BPLM test for random effects rejected the null hypothesis in all cases, confirming the presence of individual effects between the states. Furthermore, the Hausman test was statistically significant, validating the fixed effects model specification as the most appropriate. Diagnostic tests revealed no evidence of cross-sectional dependence or multicollinearity. However, heteroskedasticity and first-order autocorrelation were detected, as anticipated.

**Table 2.**
Tests performed on the fixed effects panel model

| **Pruebas / Variable dependiente** | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
|---|---|---|---|---|---|---|---|---|---|---|
| BPLM | 57,36 | * | 42,66 | * | 51,60 | * | 82,03 | * | 47,17 | * |
| Hausman | 279,40 | * | 194 | * | 87,22 | * | 118 | * | 91,15 | * |
| *Dependencia transversal* | | | | | | | | | | |
| Pesaran | 2,88 | | 7,07 | | 3,46 | | 4,81 | | 3,91 | |
| *Multicolinealidad* | | | | | | | | | | |
| VIF | 6,46 | | 6,46 | | 6,46 | | 6,46 | | 6,46 | |
| *Autocorrelación* | | | | | | | | | | |
| Modified DW | 2,97 | | 2,21 | | 2,01 | | 1,88 | | 1,89 | |
| Baltagi-Wu-LBI | 3,94 | | 2,17 | | 1,99 | | 1,75 | | 1,45 | |
| *Heterocedasticidad* | | | | | | | | | | |
| Wooldridge | 158,21 | * | 75,5 | * | 189,9 | * | 105,4 | * | 158,03 | * |
| Wald | 714,05 | * | 749,2 | * | 843,6 | * | 793,2 | * | 784,4 | * |

* Significant at 1 percent.
Source: Own elaboration based on estimations from STATA.

The BPLM test establishes as the null hypothesis that the pooled OLS estimator is the appropriate one (Ho: $\sigma^2_u = 0$). The Hausman test tests the null hypothesis that there is no substantial difference between the fixed effects and random effects estimators (Ho: $\text{Corr}(ui, \mathbf{X}) = 0$). Pesaran's test indicates as the null hypothesis that there is no cross-sectional dependence (between cross-section units). Autocorrelation

tests establish as the null hypothesis that there is no autocorrelation (Ho: $u_{it} = u_{it-1}$). The null hypothesis of the modified Wald test is that there is no heteroscedasticity problem (Ho: $\sigma^2_i = \sigma^2$).

To address the relationship between FDI and poverty, several model specifications were estimated using a dynamic panel with the S-GMM estimator. The consistency of this estimator was assessed through specification tests, the results are shown in Table 3; *p*-values for the Hansen, Diff-in-Hansen, and AR(1) and AR(2) autocorrelation tests are reported. The results indicate that the null hypotheses of joint instrument validity and additional instrument validity are not rejected in any of the specifications. No evidence of second-order autocorrelation was found either. Therefore, it is concluded that the model specifications, which alternately include regional, state, and interactive dummies, are well specified and preferable to a first-differenced GMM model. These specifications adequately capture the effects of FDI on state-level poverty. Furthermore, the coefficients maintain their statistical significance and the expected signs across all specifications.

The results reveal a significant impact of FDI on poverty reduction. Specifically, a decrease is observed in the percentage of people living in total poverty, moderate poverty, and with incomes below the poverty line. This effect can be attributed to FDIs ability to stimulate the labour market, generating stable jobs that provide continuous income and allow workers to cover their basic needs (food and non-food needs). This explanation aligns with the evidence provided by Temkin and Cruz (2019), who document the positive effect of FDI on formal job creation in Mexico. It also agrees with the literature that highlights the direct and indirect contribution of FDI to employment and income (Nguyen et al., 2024).

Despite the observed positive effects, the estimated coefficients for FDI are low in magnitude, suggesting that its contribution to poverty reduction is limited. This finding is in line with Temkin and Cruz (2019), who point out that FDI tends to generate employment mainly when domestic firms meet the high standards demanded by foreign firms. Given the limited competitiveness of small and medium-sized enterprises (SMEs) in Mexico, the positive impact of FDI on job creation and, consequently, on poverty reduction, is restricted.

Contrary to what was expected, productive foreign capital shows a significant and positive coefficient, indicating that it tends to increase the percentage of people living in extreme poverty and with incomes below the extreme poverty line. This suggests that, while FDI can generate employment for some, it simultaneously reduces job opportunities for others. This paradox is explained by Mexico's participation in global value chains, where strategic decisions are made by transnational corporations, and by the limited productive integration within national chains (Blyde, 2013). These conditions restrict the potential of FDI to create jobs that absorb the labour supply of the poorest. In other words, FDI in Mexico has not managed to generate sufficient productive capacity to drive the creation of enough quality jobs.

**Table 3.**
Estimates: Effects of FDI on poverty at the federal entity level

| Variables | Estimación sys-GMM[a] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| $piilpi_{t-1}$ | 0.2891* | [0.039] | - | | - | | - | | - | |
| $piilpei_{t-1}$ | - | | 0.0092** | [0.068] | - | | - | | - | |
| $psp_{t-1}$ | - | | - | | 0.4094* | [0.032] | - | | - | |
| $pspm_{t-1}$ | - | | - | | - | | 0.4651* | [0.014] | - | |
| $pspe_{t-1}$ | - | | - | | - | | - | | 0.1837** | [0.058] |
| *tiedr* | -0.0028** | [0.061] | 0.0052** | [0.074] | -0.0007*** | [0.094] | -0.0014** | [0.061] | 0.0074** | [0.063] |
| *tate* | -0.2580* | [0.010] | -0.7068** | [0.078] | -0.3510** | [0.071] | -0.2120*** | [0.097] | -0.0581* | [0.017] |
| *ep* | 0.1505** | [0.051] | 0.2572** | [0.054] | 0.2152* | [0.046] | 0.2220** | [0.084] | 0.4924* | [0.030] |
| *corr* | 0.0724** | [0.053] | 0.6914* | [0.023] | 0.0422** | [0.054] | 0.0235** | [0.071] | 0.4969* | [0.025] |
| *dcp* | -0.1592** | [0.068] | -0.1673** | [0.067] | -0.2166** | [0.063] | -0.2132** | [0.073] | -0,4667 | [0.139] |
| *gp* | -0.1149** | [0.062] | -0,6593 | [0.162] | -0.0193** | [0.052] | -0.1123** | [0.062] | -0,0473 | [0.164] |
| *r28* | -0.0949* | [0.049] | -0.2574* | [0.049] | -0,0289 | [0.149] | -0.1840* | [0.046] | -0,4398 | [0.174] |
| *rr2533* | -0.5799* | [0.014] | -0.9247* | [0.011] | -0,5015 | [0.131] | -0,2261 | [0.136] | -0.5220* | [0.041] |
| *prosp* | -0.0423* | [0.037] | -0.1044** | [0.068] | -0.0207* | [0.047] | -0.0129* | [0.043] | -0.0706** | [0.063] |
| *rem* | -0.1319* | [0.015] | -0.5993* | [0.021] | -0.1770* | [0.034] | -0.1725** | [0.054] | -0.4621* | [0.028] |
| *dfn* | 0.0798** | [0.066] | 0,0713 | [0.137] | 0,0325 | [0.188] | -0.1639** | [0.058] | 0,5204 | [0.157] |
| *constante* | 2,2199 | [0.168] | 2.7574** | [0.076] | 2.5523** | [0.057] | 2.8556* | [0.024] | 4.5892** | [0.058] |
| *ags* | - | | - | | - | | - | | - | |
| *bc* | - | | - | | - | | - | | - | |
| *bcs* | - | | - | | - | | - | | - | |
| *camp* | - | | - | | - | | - | | - | |
| *cdmx* | - | | - | | - | | - | | - | |
| *chih* | - | | - | | - | | - | | - | |
| *chis* | - | | - | | - | | - | | - | |
| *coah* | - | | - | | - | | - | | - | |
| *col* | - | | - | | - | | - | | - | |
| *dgo* | - | | - | | - | | - | | - | |
| *gro* | - | | - | | - | | - | | - | |
| *gto* | - | | - | | - | | - | | - | |
| *hgo* | - | | - | | - | | - | | - | |
| *jal* | - | | - | | - | | - | | - | |
| *mex* | - | | - | | - | | - | | - | |
| *mich* | - | | - | | - | | - | | - | |
| *mor* | - | | - | | - | | - | | - | |

| Variables | Estimación sys-GMM[a] | | | | |
|---|---|---|---|---|---|
| | ***piilpi*** | ***piilpei*** | ***psp*** | ***pspm*** | ***pspe*** |
| *nay* | - | - | - | - | - |
| *nl* | - | - | - | - | - |
| *oax* | - | - | - | - | - |
| *pue* | - | - | - | - | - |
| *qro* | - | - | - | - | - |
| *qroo* | - | - | - | - | - |
| *sin* | - | - | - | - | - |
| *slp* | - | - | - | - | - |
| *son* | - | - | - | - | - |
| *tab* | - | - | - | - | - |
| *tamps* | - | - | - | - | - |
| *tlax* | - | - | - | - | - |
| *ver* | - | - | - | - | - |
| *yuc* | - | - | - | - | - |
| *zac* | - | - | - | - | - |
| AB AR(1) | 0,059 | 0,196 | 0,327 | 0,056 | 0,065 |
| AB AR(2) | 0,296 | 0,589 | 0,582 | 0,497 | 0,719 |
| Test de Hansen | 0,313 | 0,415 | 0,205 | 0,349 | 0,262 |
| Test diff-in-Hansen | 0,336 | 0,235 | 0,449 | 0,237 | 0,568 |
| Observaciones | 192 | 192 | 192 | 192 | 192 |
| No. de instrumentos | 42 | 42 | 42 | 42 | 42 |

| Variables | Estimación sys-GMM[b] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| $piilpi_{t-1}$ | 0.0973** | [0.058] | - | | - | | - | | - | |
| $piilpei_{t-1}$ | - | | 0.0223*** | [0.089] | - | | - | | - | |
| $psp_{t-1}$ | - | | - | | 0.0179** | [0.059] | - | | - | |
| $pspm_{t-1}$ | - | | - | | - | | 0.1158** | [0.063] | - | |
| $pspe_{t-1}$ | - | | - | | - | | - | | 0.0435** | [0.063] |
| *tiedr* | -0.0016** | [0.052] | 0.0069** | [0.057] | -0.0022** | [0.056] | -0.0038** | [0.053] | 0.0019** | [0.055] |
| *tate* | -0.2866*** | [0.094] | -0,1261 | [0.135] | -0.1150** | [0.074] | -0.1435** | [0.066] | -0,0942 | [0.130] |
| *ep* | 0.1001** | [0.063] | 0.0466*** | [0.083] | 0.0345*** | [0.085] | 0.0555** | [0.076] | 0.0221*** | [0.082] |
| *corr* | 0.0150*** | [0.088] | 0.2740*** | [0.088] | 0.0398** | [0.077] | 0.0613** | [0.053] | 0.0360* | [0.046] |
| *dcp* | -0.1749** | [0.066] | -0.1067*** | [0.088] | -0.2583** | [0.071] | -0.0931** | [0.072] | -0,0697 | [0.145] |
| *gp* | -0.0982** | [0.072] | -0,7662 | [0.115] | -0.2971** | [0.058] | -0.1416** | [0.069] | -0,4877 | [0.159] |

(*Continued*)

| Variables | Estimación sys-GMM[b] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| *r28* | -0.0858** | [0.077] | -0.2230*** | [0.087] | -0,1999 | [0.115] | -0.0086** | [0.065] | -0,3477 | [0.107] |
| *rr2533* | -0.1653** | [0.069] | -0.2769*** | [0.084] | -0,0817 | [0.189] | -0,0433 | [0.190] | -0.0967*** | [0.082] |
| *prosp* | -0.0229** | [0.070] | -0.4718* | [0.019] | -0.0451** | [0.063] | -0.0326** | [0.059] | -0.1502** | [0.057] |
| *rem* | -0.0776* | [0.039] | -0.5394* | [0.049] | -0.0824* | [0.048] | -0.1318* | [0.046] | -0.2382* | [0.035] |
| *dfn* | - | | - | | - | | - | | - | |
| *constante* | 5.7075*** | [0.095] | 1.4464*** | [0.086] | 2.4961*** | [0.092] | 2.1590** | [0.071] | 1.6828** | [0.069] |
| *ags* | -0.0031*** | [0.094] | 0,0030 | [0.166] | 0,0033 | [0.101] | -0,0028 | [0.133] | 0,0017 | [0.137] |
| *bc* | 0.0013** | [0.076] | 0,0011 | [0.122] | 0,0017 | [0.175] | 0.0015** | [0.066] | 0,0017 | [0.144] |
| *bcs* | -0.0113** | [0.075] | 0,0003 | [0.185] | -0,0005 | [0.185] | -0,0003 | [0.146] | 0,0004 | [0.135] |
| *camp* | 0.0078*** | [0.097] | 0.0470** | [0.075] | -0.0209** | [0.089] | -0,0089 | [0.139] | -0,007 | [0.118] |
| *cdmx* | -0.0106** | [0.078] | -0.0366*** | [0.088] | 0,0310 | [0.086] | -0.0454** | [0.078] | 0.0348** | [0.071] |
| *chih* | 0.0012** | [0.087] | -0,0006 | [0.137] | 0,0008 | [0.185] | 0.0012** | [0.080] | 0,001 | [0.138] |
| *chis* | 0,0002 | [0.136] | -0.0001* | [0.079] | 0,0001 | [0.189] | -0.0008** | [0.079] | -0,0013 | [0.107] |
| *coah* | 0.0020** | [0.057] | 0,0013 | [0.117] | 0,0011 | [0.160] | -0,0007 | [0.120] | 0,0013 | [0.122] |
| *col* | -0,0013 | [0.188] | 0,0003 | [0.196] | 0,0004 | [0.201] | 0.0003*** | [0.083] | 0,0001 | [0.123] |
| *dgo* | -0,001 | [0.150] | 0,0007 | [0.211] | 0,0009 | [0.191] | 0,0007 | [0.136] | 0,0012 | [0.111] |
| *gro* | -0.0008** | [0.072] | -0.0011*** | [0.089] | -0.0016*** | [0.087] | -0.0014*** | [0.085] | -0.0018** | [0.072] |
| *gto* | 0.0011** | [0.062] | 0.0008** | [0.061] | 0.0012** | [0.064] | 0.0010** | [0.066] | 0,0006 | [0.138] |
| *hgo* | 0,0015 | [0.122] | 0,0011 | [0.099] | 0,0010 | [0.103] | -0,0010 | [0.122] | -0,0011 | [0.143] |
| *jal* | 0.0018** | [0.067] | 0,0025 | [0.168] | 0,0020 | [0.166] | 0.0022** | [0.063] | 0,0017 | [0.113] |
| *mex* | 0.0011** | [0.061] | 0,0016 | [0.163] | 0.0018** | [0.065] | 0.0021** | [0.065] | 0.0022** | [0.068] |
| *mich* | -0,0011 | [0.153] | -0,0002 | [0.175] | -0,0025 | [0.165] | -0,0002 | [0.105] | -0,0022 | [0.103] |
| *mor* | -0.0011** | [0.078] | -0,0013 | [0.128] | -0,0001 | [0.115] | -0,0015 | [0.127] | -0,0014 | [0.107] |
| *nay* | -0.0005** | [0.069] | 0,0015 | [0.127] | 0,0013 | [0.171] | -0.0063** | [0.061] | 0,0034 | [0.141] |
| *nl* | 0.0018** | [0.063] | 0.0022** | [0.071] | 0.0020** | [0.068] | 0.0020** | [0.069] | 0,0017 | [0.134] |
| *oax* | -0.0008** | [0.072] | -0.0016** | [0.073] | -0.0018** | [0.071] | -0.0025** | [0.075] | -0.0027** | [0.072] |
| *pue* | -0.0025** | [0.070] | -0.0022** | [0.072] | -0.0020** | [0.070] | -0.0019** | [0.072] | -0.0016** | [0.071] |
| *qro* | 0.0023** | [0.075] | 0.0028* | [0.034] | 0.0027* | [0.018] | 0.0024* | [0.037] | 0,002 | [0.099] |
| *qroo* | 0,0009 | [0.162] | 0,0003 | [0.173] | 0,0001 | [0.158] | 0,0001 | [0.134] | 0,0004 | [0.147] |
| *sin* | 0.0008** | [0.080] | 0,0008 | [0.120] | 0,0007 | [0.117] | 0,0008 | [0.127] | 0,0013 | [0.106] |
| *slp* | -0.0019** | [0.072] | -0.0017** | [0.074] | -0.0014** | [0.071] | -0,0018 | [0.109] | 0,0015 | [0.112] |
| *son* | 0.0012** | [0.068] | -0.0014** | [0.073] | -0.0014** | [0.077] | 0.0011** | [0.075] | 0,0015 | [0.103] |
| *tab* | 0,0002 | [0.188] | 0,0004 | [0.181] | 0,0003 | [0.176] | 0,0004 | [0.148] | 0,0007 | [0.128] |
| *tamps* | 0.0013** | [0.065] | 0,0011 | [0.116] | -0.0013** | [0.066] | 0.0012** | [0.069] | 0,0011 | [0.117] |
| *tlax* | 0,0007 | [0.175] | 0,0008 | [0.154] | 0,0007 | [0.146] | 0,0004 | [0.124] | -0.0009** | [0.084] |

(*Continued*)

| Variables | Estimación sys-GMM[b] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| *ver* | 0.0013** | [0.075] | -0.0016** | [0.071] | 0,0015 | [0.173] | 0.0013** | [0.078] | 0.0017** | [0.075] |
| *yuc* | -0.0008*** | [0.095] | -0.0006** | [0.081] | -0.0007** | [0.082] | -0,0011 | [0.128] | -0.0014** | [0.072] |
| *zac* | 0,0002 | [0.157] | -0.0004*** | [0.086] | -0,0003 | [0.109] | -0,0007 | [0.137] | -0,0005 | [0.144] |
| AB AR(1) | 0,106 | | 0,166 | | 0,277 | | 0,185 | | 0,495 | |
| AB AR(2) | 0,627 | | 0,351 | | 0,606 | | 0,389 | | 0,511 | |
| Test de Hansen | 0,267 | | 0,278 | | 0,224 | | 0,246 | | 0,294 | |
| Test diff-in-Hansen | 0,278 | | 0,321 | | 0,321 | | 0..278 | | 0,301 | |
| Observaciones | 192 | | 192 | | 192 | | 192 | | 192 | |
| No. de instrumentos | 42 | | 42 | | 42 | | 42 | | 42 | |

| Variables | Estimación sys-GMM[c] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| $piilpi_{t-1}$ | 0.0699** | [0.074] | - | | - | | - | | - | |
| $piilpei_{t-1}$ | - | | 0.7845** | [0.061] | - | | - | | - | |
| $psp_{t-1}$ | - | | - | | 0.7553*** | [0.081] | - | | - | |
| $pspm_{t-1}$ | - | | - | | - | | 0.6434** | [0.065] | - | |
| $pspe_{t-1}$ | - | | - | | - | | - | | 0.9289** | [0.051] |
| *tiedr* | -0.0054** | [0.058] | 0.0183** | [0.075] | -0.0094** | [0.056] | -0.0129** | [0.066] | 0.0137* | [0.049] |
| *tate* | -0.2531*** | [0.092] | -0.0926*** | [0.079] | -0.5048*** | [0.086] | -0.6717*** | [0.085] | -0.3543*** | [0.082] |
| *ep* | 0.0773** | [0.072] | 0.0948*** | [0.083] | 0.6702*** | [0.088] | 0.8548*** | [0.082] | 0.3841** | [0.065] |
| *corr* | - | | - | | - | | - | | - | |
| *dcp* | -0.2877*** | [0.088] | -0.2320*** | [0.085] | -0,0118 | [0.158] | -0.0911*** | [0.085] | -0,6899 | [0.128] |
| *gp* | -0.5048*** | [0.090] | -0,8351 | [0.167] | -0.9172** | [0.068] | -0.0755** | [0.063] | -0,3564 | [0.148] |
| *r28* | -0.1127** | [0.079] | -0.5886*** | [0.081] | -0,8219 | [0.177] | -0.8494*** | [0.084] | -0,3566 | [0.164] |
| *rr2533* | -0.8458** | [0.066] | -0.6111* | [0.042] | -0,8347 | [0.158] | -0,4307 | [0.175] | -0.1869** | [0.074] |
| *prosp* | -0.2275** | [0.082] | -0.1309*** | [0.087] | -0.0367*** | [0.089] | -0.4878*** | [0.085] | -0.0756** | [0.079] |
| *rem* | -0.1265* | [0.037] | -0.5636** | [0.073] | -0.2834** | [0.073] | -0.1960** | [0.062] | -0.3270** | [0.058] |
| *dfn* | - | | - | | - | | - | | - | |
| *constante* | 1.0295** | [0.065] | 1,3471 | [0.163] | 1.1095** | [0.058] | 1.3584** | [0.055] | 1,2573 | [0.154] |
| *ags* | -1.7428** | [0.074] | -0,5115 | [0.104] | -1,0608 | [0.169] | -1.7720** | [0.065] | -1,825 | [0.141] |
| *bc* | -4.4644** | [0.073] | -2.2695*** | [0.092] | -1.3740*** | [0.086] | -0.9482** | [0.071] | -2,7608 | [0.129] |
| *bcs* | 0.5693*** | [0.085] | 0,2136 | [0.128] | 0,3205 | [0.109] | 0.4252*** | [0.087] | 0,1148 | [0.116] |
| *camp* | 0.5566*** | [0.085] | 0,4907 | [0.127] | 0.3361*** | [0.084] | 0,7284 | [0.184] | 0,1083 | [0.183] |
| *cdmx* | -0.2295*** | [0.089] | -0.6460*** | [0.091] | -0.1750*** | [0.081] | -0.6246*** | [0.082] | -0,5101 | [0.181] |

(*Continued*)

| Variables | Estimación sys-GMM[c] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| *chih* | -2.5819*** | [0.082] | -1,2968 | [0.119] | -0,7995 | [0.189] | -0.8000** | [0.065] | -0,0291 | [0.169] |
| *chis* | -0,0019 | [0.195] | -0,1209 | [0.117] | -0,0762 | [0.126] | -0,2602 | [0.113] | -0,2665 | [0.129] |
| *coah* | 0.45920*** | [0.075] | -3,3348 | [0.192] | -1.0296** | [0.074] | -1.4836** | [0.074] | -2,0427 | [0.172] |
| *col* | 0.0321*** | [0.081] | -0.0374*** | [0.087] | -0,0152 | [0.184] | -0.3850*** | [0.085] | -0.0820*** | [0.085] |
| *dgo* | -1,1891 | [0.129] | -1,8391 | [0.108] | -0,5635 | [0.103] | -0,5048 | [0.105] | -0,1781 | [0.138] |
| *gro* | -2.2549*** | [0.087] | -1.7842*** | [0.091] | -0.2670*** | [0.088] | -0,1491 | [0.184] | -0.2640*** | [0.081] |
| *gto* | -0.0956*** | [0.089] | -0,6374 | [0.128] | -0.7041** | [0.072] | -0.3333** | [0.073] | -0.1871** | [0.077] |
| *hgo* | 3.1161*** | [0.086] | 2,857 | [0.111] | 1,1182 | [0.178] | 2.4651*** | [0.086] | 0,011 | [0.126] |
| *jal* | 0,0021 | [0.107] | -0,0931 | [0.190] | -0.0219** | [0.077] | -0.0845** | [0.076] | -0,0459 | [0.183] |
| *mex* | 0.8349*** | [0.088] | 1.6872*** | [0.088] | 1,4381 | [0.175] | 1.5269** | [0.075] | 1.1864** | [0.074] |
| *mich* | 1.4931*** | [0.082] | 2,6714 | [0.133] | 1,8816 | [0.173] | 2.1649** | [0.074] | 3,8604 | [0.173] |
| *mor* | -1.2556*** | [0.088] | -0,3767 | [0.118] | -0,9027 | [0.183] | -0.3448*** | [0.086] | -0,0823 | [0.183] |
| *nay* | -0,4194 | [0.104] | -2,2599 | [0.116] | -0,1709 | [0.111] | -0,1175 | [0.125] | -0,2217 | [0.170] |
| *nl* | -0.6872*** | [0.082] | 0,8278 | [0.128] | 0,1118 | [0.109] | 0,1588 | [0.196] | 0,3036 | [0.166] |
| *oax* | -1.1386*** | [0.088] | -2.7654*** | [0.083] | -2.9094** | [0.063] | -1.1736** | [0.064] | -0.9662** | [0.062] |
| *pue* | -3.3629*** | [0.086] | 0,0201 | [0.121] | -1.3091*** | [0.087] | -1.2482*** | [0.085] | -1,992 | [0.189] |
| *qro* | 0.0157*** | [0.090] | -0,7985 | [0.116] | -0,0228 | [0.136] | -0,9318 | [0.112] | -0,2103 | [0.128] |
| *qroo* | -0.8451*** | [0.083] | -1,0313 | [0.182] | -0,6532 | [0.163] | -0.2411** | [0.065] | -1.5866** | [0.065] |
| *sin* | -1.4205*** | [0.086] | -2,0916 | [0.168] | -0,6714 | [0.120] | -1.5239*** | [0.086] | -0.0762*** | [0.085] |
| *slp* | -1.1386*** | [0.088] | -1,2186 | [0.127] | -1,0671 | [0.187] | -1.0270*** | [0.086] | -1,0468 | [0.116] |
| *son* | 0.6676*** | [0.088] | 0,6224 | [0.177] | 0.0346*** | [0.088] | 0.7781*** | [0.084] | 1,7357 | [0.183] |
| *tab* | 2.6752** | [0.067] | 2,5163 | [0.170] | 2,188 | [0.152] | 2.0966** | [0.055] | 3,482 | [0.128] |
| *tamps* | 0.3608*** | [0.093] | 0.5031*** | [0.091] | 0.3212*** | [0.089] | 0.7339*** | [0.085] | 0,5125 | [0.113] |
| *tlax* | 0,4945 | [0.151] | 0,2513 | [0.137] | 0,1012 | [0.108] | 0,0236 | [0.119] | 0,2465 | [0.153] |
| *ver* | -0,703 | [0.119] | -0,7544 | [0.121] | -1,6582 | [0.130] | -1,3109 | [0.136] | -0,8855 | [0.107] |
| *yuc* | -2,1993 | [0.116] | -4,4049 | [0.115] | -1,9111 | [0.135] | -1,1296 | [0.157] | -0,8976 | [0.158] |
| *zac* | 0,0491 | [0.165] | 0,0464 | [0.129] | 0,0147 | [0.148] | 0,0809 | [0.106] | 0,0951 | [0.103] |
| AB AR(1) | 0,484 | | 0,415 | | 0,539 | | 0,249 | | 0,176 | |
| AB AR(2) | 0,514 | | 0,451 | | 0,557 | | 0,265 | | 0,179 | |
| Test de Hansen | 0,311 | | 0,258 | | 0,301 | | 0,249 | | 0,294 | |
| Test diff-in-Hansen | 0,339 | | 0,275 | | 0,336 | | 0,274 | | 0,307 | |
| Observaciones | 192 | | 192 | | 192 | | 192 | | 192 | |
| No. de instrumentos | 42 | | 42 | | 42 | | 42 | | 42 | |

Hansen's test establishes as the null hypothesis that the overidentification restrictions are valid. The difference-in-Hansen test establishes the null hypothesis of the joint validity of a subset of instruments.

The Arellano-Bond autocorrelation test establishes as the null hypothesis that $[u_{it}–u_{it-2}] = 0$.
Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.
Source: Own elaboration based on estimations from STATA.

Employment options for those who are unable to access jobs in foreign companies, generally larger or integrated into global value chains, are mainly limited to small businesses and lower productivity sectors, such as agriculture, hospitality, retail trade and personal services, or the informal market. This situation significantly increases the risk of falling into poverty, as García and Toharia (2007) point out.

Those workers excluded from the benefits of FDI tend to face precarious working and income conditions, characterized by unemployment, subemployment or informality, which pushes them towards extreme poverty, often aggravated by lower educational qualifications. The presence of foreign companies, either directly or through its effects on the market structure, can contribute to unemployment, precarious working conditions, and the increase in informal employment (Aragonés & Salgado, 2015). Furthermore, following Mendoza (2010), employment policies linked to FDI, especially in the northern border states, have had limited success in reducing unemployment due to their countercyclical nature. CONEVAL (2015) also notes that globalization has played a significant role in the increase of extreme poverty in Mexico, which is consistent with the fact that, on average, new investments represented only 30% of total FDI during the period.

The duality of FDI in contributing to the reduction of moderate poverty while increasing extreme poverty supports the argument of Fernández (2010) about the labour market segmentation in Mexico. This segmentation implies the coexistence of different wage formation mechanisms and labour mobility patterns. In other words, FDI tends to segment and polarize the quality of employment, benefiting only part of the workforce. The analysis of aggregate effect on poverty reveals an insufficient creation of quality jobs by foreign-capitalized companies.

Considering the other productive and globalization variables, temporary employment shows statistical significance in almost all model specifications. Remittances and productive specialization are significant in all poverty models considered. It should be noted that both temporary employment and remittances have negative signs, indicating that they act as mechanisms for reducing poverty and extreme poverty.

The effect of temporary employment is counterintuitive, as it contradicts expectations based on previous literature. García and Toharia (2007) point out that workers with temporary contracts face a higher risk of poverty compared to those with permanent contracts. Furthermore, the International Labor Organization (ILO, 2003) highlights that casual workers lack the same social protection as permanent workers, and often receive precarious wages that force them to work longer hours. Nevertheless, the results suggest that temporary employment is a way to supplement household income and alleviate poverty. In other words, workers may resort

to multiple temporary jobs to generate sufficient income and improve their economic situation.

Although not optimal from a social perspective, remittances represent a market mechanism to alleviate poverty. This finding is consistent with the findings of Mora and Morales (2018), and Mora et al. (2018), who document the reducing effect of international remittances on poverty in Mexico. In this sense, Bonilla (2018) establishes that, for 28% of Mexican households, private transfers from abroad, mainly sent by relatives in the United States, constitute the main source of income and a crucial resource to face social deprivation.

The effectiveness of remittances in reducing poverty is conditioned by state institutional structures and their capacity to address socioeconomic problems (Mora & Morales, 2018). Furthermore, the impact of remittances differs according to the type of poverty, being more pronounced in extreme poverty than in moderate poverty. This pattern is also observed in Sánchez (2010).

Also, the concentration of productive activity in the primary sector is associated with an increase in poverty in any of its measurements. This relationship is explained by the negative contribution of the primary sector to economic growth (Cruz & Polanco, 2014). Industrialization processes have marginalized the primary sector (Yao, 2000, cited in Cruz & Polanco, 2014), resulting in low wages and, consequently, higher poverty rates particularly in rural areas.

In addition, the processes of sectorization of production and employment imposed by globalization, through FDI, have distorting effects on the sectoral distribution of employment in the Mexican economy. That is, FDI represents a way of expelling work from the primary sector to the other two sectors (Chiatchoua et al., 2016), affecting the remuneration of those who remain in the sector and, therefore, the context of poverty in which they live.

The estimates also reveal that public spending variables have a significant effect on poverty. Particularly, the public spending variable (*pitas*) presents significant and negative coefficients in the models analysing moderate and general poverty. This suggests that current and capital spending, materialized in public works, productive projects, and promotional actions, among other initiatives implemented by state governments, contribute substantially to reducing the proportion of people experiencing social deprivation and limited income.

Previous studies (Cortés, 2014; Loera et al., 2016; Martínez et al., 2019) confirm that public social spending, mainly the allocated to social issues, reduces poverty. This is due to direct and indirect job creation, such as in public works which hire temporary workers. This means a chance to increase income and, consequently, to improve social conditions. However, public social spending is necessary, but not sufficient, to combat poverty (Martínez et al., 2019).

Likewise, transfers from the federal government to state and municipal governments, the coefficient of Branch 28 (*psbr28*) shows statistical significance and a

negative sign in three models: moderate poverty, economic poverty, and extreme poverty. Since these resources are unconditional and freely available to states and municipalities, a relatively consistent incidence in the reduction of moderate poverty is observed, particularly through the General Participation Funds and the Municipal Development Funds, as well as income derived from vehicle ownership, which constitute the main components of this branch. However, the resources of this fund do not seem to contribute significantly to extreme poverty reduction. Consequently, according to Echenique and Hernández (2019), the promotion of economic activities and infrastructure financed with resources from Branch 28 could limit regional convergence between the federal entities.

Federal contributions of Branches 25 and 33 demonstrate a significant impact on reducing extreme poverty, both income-related and for social deprivations (negative coefficients). The conditional nature of this spending ensures its efficiency, allowing specific needs for access to public goods and services to be met. This suggests that transfers from Branches 25 and 33 tend to fulfil their purpose of reducing inequality in education, health, and security during the period.

Comparatively, the effect of Branch 25-33 is greater than that of Branch 28. Branch 28 are federal participations classified as non-earmarked or freely available transfers, where local governments can use them in any item of expenditure considered a priority. In contrast, Branch 25-33 can only be applied for the purposes indicated in the Fiscal Coordination Law (Reyes, 2018). Thus, the nature of the specific purpose or labelling of the resources 25-33, which limits the decision-making powers of the state governments, seems to favour their quality over the discretionary use of the resources of the Branch 28 by the state governments. In addition, the results suggest that the reduction in the percentage of people with three or more social deprivations and who are below the line of minimum well-being (extreme poverty) comes to a greater extent from the 25-33 class, compared to the 28 class. This situation could be related to the approach of Loría and Martínez (2021) on the existence of perverse incentives of transfers from the federal government that perpetuate poverty in entities with a lower level of development, generally with lower institutional capacities that can translate into lower levels of efficiency in the use of the resources of the Branch 28.

The federal spending through Progresa programme shows a significant and negative impact on poverty in all models. This suggests that spending on social development acts as an effective mechanism to combat poverty. This result aligns with the evidence provided by Urzúa and Brambila (2009), Scott (2017), and López et al. (2018), who document the role of the Progresa-Oportunidades programme in reducing and preventing poverty, mainly through the progressive nature of the programme has managed to reduce extreme poverty. The result is also in line with the arguments of Aguilar et al. (2019) because Prospera provides resources to access food and other basic necessities.

However, Camberos and Bracamontes (2015) conclude that the impact of the Oportunidades programme has been low, a result that is consistent with the findings of this study. Furthermore, they point out that the impact of the programme is heterogeneous across different regions of the country (Bracamontes et al., 2011). Likewise, Hernández and Aguilar (2015) find that participation in the Oportunidades programme does not significantly reduce the probability of living in poverty.

On the other hand, the lagged poverty variables show statistical significance in all cases, with positive coefficients. This indicates that prior poverty contributes to perpetuating current poverty levels. This finding is consistent with Garza (2023), Campos and Esquivel (2022), and Canto (2019), among others, which rise the idea of poverty persistence.

The lagged poverty coefficients are the highest, suggesting not only the complexity of combating this phenomenon, but also that the persistence of poverty is linked to the limits of social spending and programmes and market mechanisms to break the intergenerational transmission of poverty in all the measures considered. Specifically, Martínez et al. (2019) show the paradox of the increased resources allocated to combat poverty and its persistent presence.

On the variable linked to political factors, corruption emerges as a critical determinant of poverty, with a significant impact across all model specifications. This result aligns with previous research, such as González and Sánchez (2019), which also reports the adverse effect of corruption on poor populations. It is also in line with Oliveira et al. (2022), for whom corruption influences the gap between the income of the poorest and the poverty line. In this direction, Rashid et al. (2023) argue that corruption devastates the effectiveness of institutions and, as a consequence, the living conditions of the poor. Also, they offer an explanation of our result, establishing that corruption creates asymmetry in income distribution, that is, improves the most prosperous income while worsening the income of the poorest.

The transmission mechanism operates through low institutional quality, directly reflecting corruption. This institutional deficiency limits or denies access to essential basic opportunities and services for the population of the states. Corruption perpetuates a cycle of deprivation and inequality by diverting public resources and undermining the effectiveness of social policies. An extension of this argument is planted by Kırşanlı (2023), who explains that higher corruption in political and bureaucratic institutions leads to higher unemployment. Consequently, by becoming entrenched in socioeconomic life, corruption exacerbates poverty and intergenerational cycles of poverty.

Road infrastructure shows a poverty-reducing effect on most poverty indicators, except for extreme poverty. This result is consistent with Obregón (2010), and García et al. (2019). Greater road network density translates into lower poverty levels, because road infrastructure facilitates the expansion of local markets,

increasing competition and diversifying options for consumers and producers (Saavedra, 2011). Connecting local markets to larger economic centres boosts economic growth and, therefore, reduces poverty rates.

The regional dummy variable, that identifies the northern border states, shows a positive and significant effect in the moderate poverty models (*pibipl*, *plmp*). This suggests that the reduction in moderate poverty, both in its overall and income dimensions, has been less pronounced in the northern border states compared to the rest of the country. This disparity could be explained by the effects of competition in global markets of the *maquiladora* industry and employment in the region, given that a considerable portion of its production is destined for these markets.

Despite this, the coefficient indicates that, on average, non-border states made more significant progress in reducing total and/or moderate poverty compared to northern border states. However, this does not imply a lack of progress in the latter. According to data from CONEVAL (2019), the main progress in border states is observed in the reduction of extreme poverty, where, with the exception of Tamaulipas, all states achieved significant decreases during the period studied. However, 16 other states also experienced reductions in this type of poverty, suggesting that there is no significant difference between states in the extreme poverty models. In any case, the results suggest a convergence or closing of development gaps between the regions, although the gap in extreme poverty could widen.

The results are maintained when considering the dummy variable by federal entity. That is, there is a statistically significant difference between regions. The model membership of these dummy variables is examined by means of an F test. In general terms, the additional regressors are found to be statistically different from zero.

In particular, moderate poverty seems to be reduced more than proportionally in entities outside the northern region. The six entities of the border show comparatively lower performance in terms of reducing this poverty. For the states of the northern region, the estimated coefficients are in line with what was proposed by Garza (2016) regarding the greater probability of being poor in Coahuila, Tamaulipas and Chihuahua, compared to Baja California, Sonora, and Nuevo León.

Two main groups are also observed for the population with income below the income poverty line. On the one hand, 10 entities with a statistically significant reduction in this type of moderate poverty (Aguascalientes, Baja California Sur, CDMX, Guerrero, Morelos, Nayarit, Oaxaca, Puebla, San Luis Potosí, and Yucatán). On the other, 13 entities with an increase in moderate poverty (Baja California, Campeche, Chihuahua, Coahuila, Guanajuato, Jalisco, Mexico, Nuevo León, Querétaro, Sinaloa, Sonora, Tamaulipas, and Veracruz). In addition, Guerrero, Oaxaca and Puebla are the only entities for which reductions in poverty are estimated, regardless of the measure used. This would help reduce the citizenship deficit faced by these entities, raised by Damián (2020), which includes elements associated with poverty.

Likewise, for the interactive variables, which allow determining the effect of FDI on poverty differentiated by entities, the results are generally maintained, confirming the effect of FDI when it is estimated for the grouped entities. That is, FDI appears to systematically affect the moderate and income poor. Estimates for extreme poverty measures show the fewest number of statistically significant coefficients.

In this way, it is observed that the effects of FDI are different between entities. Specifically, for a group of 14 entities foreign investments tend to reduce moderate poverty (with little or no effect on extreme poverty): Aguascalientes, Baja California, CDMX, Chihuahua, Coahuila, Guerrero, Guanajuato, Morelos, Nuevo León, Oaxaca, Puebla, Quintana Roo, Sinaloa, and San Luis Potosí. In contrast, for a group of eight states: Baja California Sur, Campeche, Hidalgo, Mexico, Michoacán, Querétaro, Tabasco, and Tamaulipas, FDI seems to contribute negatively to conditions of poverty. The latter can be explained by the distorting effect of FDI in urban contexts, that is, although they generate jobs, they also tend to encourage migration to the productive centres where these investments are concentrated, leading to the creation of satellite colonies in which the population faces different deficiencies (Rendón, October 21, 2016). This double effect, according to the receiving entity of FDI, could be linked to the segmentation of the labour market (Fernández, 2010) indicated above. This would imply the existence of wage discrimination mechanisms between states and would contribute to the hypothesis of two types of FDI: one of quality with stable and better paid jobs, and another with precarious jobs.

However, FDI seems to contribute to reducing extreme poverty in entities such as Colima, Guerrero, Guanajuato, Oaxaca, Quintana Roo, and Sinaloa. Although Vera (2019) suggests that, in the Mexican case, extreme poverty is immune to public policies (focused on reducing malnutrition, infant mortality, illiteracy, and foreign aid) and economic progress, in these states it seems that the FDI is a substitute mechanism for public policies to reduce extreme poverty. It should be noted that an unexpected result is that the benefits in terms of poverty reduction for any of its measurements are systematically felt in Baja California Sur, Guerrero, Oaxaca, and CDMX. At the same time, for Estado de Mexico and Tamaulipas, FDI has a positive and systematic effect on poverty.

Finally, to check the robustness of the results, two different specifications were estimated following the S-GMM methodology. First, the control variables for the equation were removed. Second, equations (1) and (2) were estimated using the lags of all the explanatory variables as instruments. The results are shown in Table 4. In summary, almost all the variables maintained their statistical significance and sign. In particular, foreign investment remains a factor for alleviating poverty in the states. Consequently, it is possible to argue that, at the state level, a specific combination of economic, political and infrastructure problems, foreign companies, via FDI, contribute to poverty reduction.

**Table 4.**
Alternative S-GMM estimation results: Robustness

| Variables | Sin variables de control | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| $piilpi_{t-1}$ | 0.8678* | [0.000] | 0.7711* | [0.000] | 1.0136* | [0.000] | 0.8973* | [0.000] | 0.7889* | [0.000] |
| $piilpei_{t-1}$ | -0.0024* | [0.043] | - | | - | | - | | - | |
| $psp_{t-1}$ | - | | -0.0184* | [0.037] | - | | - | | - | |
| $pspm_{t-1}$ | - | | - | | -0.0006** | [0.072] | -0.0016** | [0.058] | - | |
| $pspe_{t-1}$ | - | | - | | - | | - | | -0.0026** | [0.089] |
| *tiedr* | - | | - | | - | | - | | - | |
| *tate* | - | | - | | - | | - | | - | |
| *ep* | - | | - | | - | | - | | - | |
| *corr* | - | | - | | - | | - | | - | |
| *dcp* | - | | - | | - | | - | | - | |
| *gp* | - | | - | | - | | - | | - | |
| *r28* | - | | - | | - | | - | | - | |
| *rr2533* | - | | - | | - | | - | | - | |
| *prosp* | - | | - | | - | | - | | - | |
| *rem* | - | | - | | - | | - | | - | |
| *dfn* | - | | - | | - | | - | | - | |
| *constante* | - | | - | | - | | - | | - | |

(*Continued*)

| Variables | Sin variables de control | | | | |
|---|---|---|---|---|---|
| | ***piilpi*** | ***piilpei*** | ***psp*** | ***pspm*** | ***pspe*** |
| AB AR(1) | 0,005 | 0,254 | 0,015 | 0,007 | 0,011 |
| AB AR(2) | 0,141 | 0,188 | 0,158 | 0,126 | 0,213 |
| Test de Hansen | 0,278 | 0,322 | 0,437 | 0,493 | 0,356 |
| Test diff-in-Hansen | 0,232 | 0,297 | 0,381 | 0,345 | 0,303 |
| Observaciones | 192 | 192 | 192 | 192 | 192 |
| No. de instrumentos | 42 | 42 | 42 | 42 | 42 |

| Variables | Variables explicativas rezagadas | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| $piilpi_{t-1}$ | 0.0087** | [0.069] | - | | - | | - | | - | |
| $piilpei_{t-1}$ | - | | 0.0213** | [0.059] | - | | - | | - | |
| $psp_{t-1}$ | - | | - | | 0.0514* | [0.044] | - | | - | |
| $pspm_{t-1}$ | - | | - | | - | | 0.1838** | [0.055] | - | |
| $pspe_{t-1}$ | - | | - | | - | | - | | 0.3282** | [0.056] |
| *tiedr* | -0.0020** | [0.073] | -0.0119** | [0.068] | -0.0006** | [0.066] | -0.0014** | [0.072] | -0.0084** | [0.069] |
| *tate* | -0.3856* | [0.016] | -0.6899** | [0.053] | -0,3592 | [0.110] | -0,3079 | [0.118] | -1,3269 | [0.136] |
| *ep* | 0.0858** | [0.063] | 0,0951 | [0.144] | 0,0391 | [0.158] | 0.1921*** | [0.096] | 0,0872 | [0.168] |
| *corr* | 0.2788* | [0.050] | 1.5059* | [0.006] | 0.2827*** | [0.092] | 0.1465** | [0.063] | 1.1829** | [0.062] |
| *dcp* | -0.0991** | [0.056] | -0.0592** | [0.079] | -0.0932** | [0.054] | -0.1853* | [0.024] | -0.0972** | [0.079] |

(*Continued*)

| Variables | Variables explicativas rezagadas | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***piilpi*** | | ***piilpei*** | | ***psp*** | | ***pspm*** | | ***pspe*** | |
| *gp* | -0.0705** | [0.087] | -0,3365 | [0.104] | -0.0971** | [0.086] | -0.1678** | [0.059] | -0.0991** | [0.074] |
| *r28* | -0.0352** | [0.071] | -0.3596** | [0.073] | -0.0621** | [0.075] | -0.1281** | [0.052] | -0.5937** | [0.057] |
| *rr2533* | -0.4277** | [0.069] | -0.7118** | [0.058] | -0.2420** | [0.064] | -0.3742* | [0.042] | -0.2444*** | [0.091] |
| *prosp* | -0,0416 | [0.136] | -0.2396** | [0.052] | -0,0161 | [0.125] | -0,0086 | [0.158] | -0,0978 | [0.109] |
| *rem* | -0.0609* | [0.033] | -0.0615** | [0.072] | -0.0174** | [0.070] | -0.1194** | [0.060] | -0.2464** | [0.056] |
| *dfn* | 0.0897** | [0.069] | 0.1758*** | [0.091] | 0,0088 | [0.118] | 0,4103 | [0.210] | 0.9930* | [0.056] |
| *constante* | 3.4688* | [0.028] | 1.1292* | [0.033] | 3.1707* | [0.046] | 4.3114* | [0.017] | 5.2234** | [0.067] |
| AB AR(1) | 0,083 | | 0,040 | | 0,043 | | 0,115 | | 0,018 | |
| AB AR(2) | 0,165 | | 0,075 | | 0,158 | | 0,340 | | 0,249 | |
| Test de Hansen | 0,270 | | 0,221 | | 0,392 | | 0,294 | | 0,258 | |
| Test diff-in-Hansen | 0,281 | | 0,305 | | 0,266 | | 0,546 | | 0,368 | |
| Observaciones | 192 | | 192 | | 192 | | 192 | | 192 | |
| No. de instrumentos | 42 | | 42 | | 42 | | 42 | | 42 | |

Hansen's test establishes as the null hypothesis that the overidentifying restrictions are valid.
The difference-in-Hansen test establishes the null hypothesis of joint validity of a subset of instruments.
The Arellano-Bond autocorrelation test establishes as the null hypothesis that [uit-uit-2] = 0.
Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
Source: Own elaboration based on the estimations from STATA.

# FINAL THOUGHTS

The sensitivity of the results to the poverty proxy used is evident in the analysis of FDI and other variables. Although the magnitudes remain relatively stable, the significance and signs of the explanatory variables show slight fluctuations. It is notable that remittances have a greater impact on reducing extreme poverty, and that temporary employment reduces income poverty. Productive specialization increases poverty in all measures. Public spending reduces moderate poverty, whereas federal participations and contributions have no clear effect in poverty reduction. Nevertheless, evidence shows that public spending through Branch 28 (contributions) have a greater effect on poverty fighting than resources of Branches 25 and 33 (participations). Likewise, public spending via Prospera reduces poverty, which confirms the central role of the programme in the strategy of poverty reduction.

While remittances tend to have a predominant impact on reducing extreme poverty, these dimensions are by themselves manifestations of poverty — since remittances mainly come from vulnerable migrant workers who face precarious working conditions and other social deprivations, and are destined for family members living in poverty and contexts of social marginalization (Canales, 2007). Similarly, temporary employment is characterized by precarious conditions (Cano, 2004) that contribute to the increase in poverty. Furthermore, the relative lack of protection in the primary sector tends to reinforce poverty.

On the other hand, whether directly, through economic resources that supports monetary income, or indirectly, through the creation of jobs that lead to higher income, the ability of public resources to reduce poverty is mainly focused on moderate poverty, negatively affecting the proportion of the population in poverty. Despite of this, the efficiency and impact of public spending on poverty reduction are limited. Although public spending contributes to reducing moderate poverty, its impact on overall poverty is insufficient. This ineffectiveness is due to a lack of coordination between levels of government, and a disconnect between policies and territorial needs, factors that also contribute to the persistence of poverty.

Although road density favours the reduction of income and moderate poverty by expanding access to markets and opportunities, corruption acts as a fundamental obstacle to overcoming poverty. Furthermore, evidence suggests that poverty is perpetuated through feedback mechanisms. This poses an additional challenge to combating social and economic deprivation.

In particular, it is found that the effects of FDI on poverty are different between entities. A particular combination of economic, political and infrastructural aspects at the state level leads to FDI contributing to varying degrees to poverty reduction. In this sense, Baja California Sur, Guerrero, Oaxaca, and CDMX are the entities with the greatest systematic benefits of FDI in reducing poverty. On the contrary, Estado de Mexico and Tamaulipas accumulate the systematic disadvantages of FDI in terms of poverty generation. Thus, in general, FDI seems to reduce income

poverty and moderate it at the state level, although it contributes to containing extreme poverty in a small group of entities such as Colima, Guerrero, Guanajuato, Oaxaca, Quintana Roo, and Sinaloa.

However, for the estimation without differentiated coefficients by state, there is evidence that FDI tends to reduce moderate poverty, although at the same time it increases extreme poverty. The participation of foreign companies in the economy distorts the labour market, offering employment and income opportunities, directly and indirectly, for some, helping to get out of poverty, but excluding others, which represents an obstacle to achieving income and employment alternatives for improve access to basic goods and services, leading them to destitution. Briefly, from the perspective of this research, the economic model in the country is characterized by generating moderately poor people with work linked to FDI and extreme poor people without formal work, excluded from the benefits of FDI. This transnational development model focuses on improving competitiveness to attract investment, leaving aside alternatives for improving the social conditions of workers.

Finally, effective poverty reduction requires attracting FDI that generates quality jobs in adequate quantities. A key strategy, widely supported by the literature, is promoting the integration of SMEs into the value chains of transnational corporations, allowing them to scale to higher value-added levels. However, this requires greater government involvement to implement complementary industrial policies that enhance the benefits of FDI, covering areas such as technological diffusion and adaptation, export promotion, and profit taxation.

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