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Índice

Profesor Dr. Norberto García In memóriam | *Rinaldo A. Colomé*
Revista de Economía y Estadística | Vol. LIV | N° 1 | 2016 | pp. 7 - 12 | ISSN 0034-8066 | e-ISSN 2451-7321
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Profesor Dr. Norberto García
In memóriam

Professor Dr. Norberto García
In memóriam

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Resumen

El Profesor Norberto García ha sido Contador Público Nacional, Licenciado y Doctor en Ciencias Económicas de nuestra Facultad de Ciencias Económicas de la Universidad Nacional de Córdoba. Fue docente de Economía Internacional y Sistemas de Información Contable y desde 1995 se desempeñó como Profesor Consulto. Ocupó los cargos de Vice Decano y Director del Instituto de Administración, y también fue Miembro de la Comisión de Posgrado. Autor de libros sobre Contabilidad Financiera y Sistemas de Información Contable y de numerosos artículos publicados no sólo en el país sino además en el exterior. Algunos de estos trabajos fueron distinguidos con el Premio Jerarquía, galardón otorgado por la Univesidad del Nordeste, por la Universidad Católica de Santa Fe y por la Universidad de Rosario. Miembro de la American Accounting Association (USA), del Institute of Management Accountants (USA), del Instituto Argentino de Profesores Universitarios de Costos (IAPUCO), de la Asociación Española de Contabilidad y Administración de Empresas (Madrid) y del International Accounting Standards Committee – IASC - (London). Además fue director de la Especialización en Contabilidad Superior y Auditoría y de la Escuela de Graduados de la Facultad de Ciencias Económicas de la Universidad Nacional de Córdoba.

Palabras clave: Recuerdo, Universidad Nacional de Córdoba, Norberto García.

Código JEL: B32.

ABSTRACT

Professor Norberto García has been a Certified Public Accountant, Bachelor and Doctor in Economic Sciences of our Faculty of Economic Sciences of the National University of Córdoba. He was a professor of International Economics and Accounting Information Systems and since 1995 he has worked as a Consultant Professor. He held the positions of Vice Dean and Director of the Institute of Administration, and was also a Member of the Graduate Commission. Author of books on Financial Accounting and Accounting Information Systems and numerous articles published not only in the country but also abroad. Some of these works were distinguished with the Hierarchy Prize, an award granted by the Univesidad del Nordeste, by the Catholic University of Santa Fe and by the University of Rosario. Member of the American Accounting Association (USA), the Institute of Management Accountants (USA), the Argentine Institute of University Professors of Costs (IAPUCO), the Spanish Association of Accounting and Business Administration (Madrid) and the International Accounting Standards Committee - IASC - (London). He was also director of the Specialization in Higher Accounting and Auditing and of the Graduate School of the Faculty of Economic Sciences of the National University of Córdoba.

Keywords: Memory, Universidad Nacional de Córdoba, Norberto García.

Código JEL: B32.

El 3 de julio pasado los miembros del Instituto de Economía y Finanzas recibimos, con la firma de su Director, el Prof. Ernesto Rezk, el siguiente correo: "La Dirección informa con profundo pesar el fallecimiento en la fecha del Doctor Norberto García, que fuera distinguido integrante del Instituto de Economía y Finanzas. Sus familiares informaron asimismo que no se realizará velatorio de sus restos".

La noticia me produjo un profundo pesar y, ante lo que suponía la imposibilidad de acompañar a su familia y despedirme de Norberto y rendirle mi homenaje personal, sentí la necesidad de hacerlo ante mis colegas; en primer lugar del Instituto –ya que muchos son jóvenes que no conocieron a Norberto- y en segundo lugar, ante los que residen en otras partes del país y que conocieron a Norberto en los tiempos en que él pertenecía al Instituto.

Comencé a escribir y, a medida que lo hacía, fui hilvanando recuerdos que quedaron –en lo sustancial- así plasmados:

"Quiero rendir mi homenaje personal a Norberto García. La Facultad, de Ciencias Económicas y las ciencias económicas, perdieron hoy a un gran profesor y gran bienhechor de ambas.

Norberto nació en Buenos Aires. Cuando él tenía 9 años su familia se trasladó a Villa Allende y luego a La Falda, donde tenían una fábrica de pastas. Norberto trabajó desde que cursaba estudios en el colegio secundario -haciendo las veces de Perito Mercantil- en pequeños comercios de La Falda. Un día, cursando creo que el tercer año de la Facultad, reparé en un señor trajeado, con grandes bigotes negros, sombrero panamá y gran portafolio lleno de libros. Era Norberto (que estaba cursando las últimas materias), con el cual prontamente nos hicimos grandes amigos.

Norberto fue el mentor e impulsor en agrupar a los jóvenes que nos gustaba la economía. (Aldo Arnaldo, ya Doctor en Ciencias Económicas y abogado, algunos ya contadores, o aún estudiantes de ciencias económicas, como mi caso y el de Guillermo Alberto Bóveda, cursando 4to. año). Nos reuníamos en la Biblioteca Manuel Belgrano a discutir sobre temas de economía, allá por el año 1956; creo que comenzamos por el libro de Hicks y Hart. Norberto acababa de ser nombrado Director de la Biblioteca, a la cual dio un gran impulso, como siempre hizo con las cosas que tomaba bajo su responsabilidad.

Permítaseme aquí una digresión. Tengo un profundo agradecimiento a su persona, no sólo por lo que hizo por las ciencias económicas y por la Facultad, sino también por su generosidad para conmigo. Siendo estudiante renuncié a mi cargo de Secretario Habilitado de la Escuela Vocacional Esteban Echeverría, para incorporarme (a los 23 años), invitado por Norberto, al Estudio Colazo y Compañía, cuya alma mater era Norberto, a principios de 1957. Al recibirme en marzo de 1958 quedé asociado al Estudio, al cual pertenecimos hasta septiembre de 1962, en que nos incorporamos con dedicación exclusiva al Instituto.

Poco tiempo después de inauguradas las reuniones en la Biblioteca, Norberto nos invitó a su casa de la calle Catamarca (Barrio General Paz), donde quedó fundado el Centro de Estudios Económicos de Córdoba (CEC),

con la presidencia de Aldo Arnaldo, e integrando la comisión directiva todos los presentes: Carlos Givogri, Juan Novara, Horacio Palmieri, Enéas Gay, Ariel Penovi, Guillermo Alberto Bóveda y yo). El Centro editó un número de la revista "Economía", que publicó un artículo de Aldo Arnaldo sobre monopolio. Al poco tiempo el Centro se disolvió, pues ingresamos (Arnaudo, Givogri, Novara, Palmieri y Norberto), primero como adscriptos y luego por concurso, al Instituto (radicado en la calle Urquiza 130) que dirigía en ese tiempo su fundador, el Dr. Benjamín Cornejo, (en mi caso en 1958, siendo el último en ingresar, pues era el más joven de todos, y acababa de recibirme). Luego, Cornejo, (siendo ya Vice Rector de la Universidad Nacional de Córdoba (UNC) -el Rector era Jorge Orgás) consiguió la ayuda de la Fundación Ford que permitió transformar al Instituto con dedicaciones simples en uno con dedicaciones exclusivas, organizado a imagen y semejanza de los del CONICET. Ganamos las posiciones, por concurso de títulos, antecedentes y oposición, Aldo Antonio Arnaudo como director (Benjamin se excluyó de la dirección, para dejar paso a la nueva generación), Carlos Alberto Givogri subdirector, Norberto, junto a Juan J. Novara y Horacio Palmieri como jefes de investigación. Carlos Eduardo Sánchez y yo como ayudantes de investigación (Carlos me desplazó del puesto de más joven del grupo). Al poco tiempo se incorporó Fernando Ferrero, también como jefe de investigación y, un año después, Héctor Juan Carlos Gruppe. Este fue el equipo base que en una década (que se ha dado en llamar la "década de oro") llevó al Instituto a compartir la cima en la investigación económica en el país. Mientras cumplía sus funciones en el Instituto, Norberto se hizo cargo de administrar la construcción del nuevo edificio de la Facultad, de amueblarlo, y del traslado de las pertenencias de la Facultad, para lo cual trabajó intensamente.

Más tarde, Norberto me acompañó como Decano Sustituto, cuando tuve que ser Decano, y al mismo tiempo como miembro del Consejo Académico Asesor (que funcionaba como Consejo Directivo –con las comisiones reglamentarias- pues lo resuelto por el Consejo era vinculante) junto a Juan Bautista Allende, Fernando Ferrero, Carlos Julio Maldonado y Carlos Sánchez. Luego la historia ya es más conocida".

La línea de investigación de Norberto en el Instituto fue Economía Internacional, preparando su Tesis Doctoral sobre el Balance de Pagos. En la vieja casona de la calle Artigas 160, donde funcionaba el Instituto ya bajo

la dirección de Arnaudo, Norberto compartía oficina con el Profesor John Hunter, de Michigan State University –que el Programa de la Fundación Ford había enviado como asesor para los dos primeros años. Como nota risueña, pero que a la vez transmitía el espíritu (y, por qué no, la osadía) de ambos, habían puesto un cartel en la pared que decía: "Lo difícil lo hacemos inmediatamente. Lo imposible tarda un poco más". John, fue el responsable de que Norberto abrazara con pasión el golf. Durante los dos años que John estuvo en Córdoba, organizó (aparte de sus invitaciones a los miembros del Instituto a su casa en el Cerro de las Rosas, sobre todo para festejar Navidad) dos o tres torneos de golf, en el Ascochinga Golf Club, en los cuales todos ganábamos alguna copa, aunque sea a la "papa área" más significativa. Yo también me entusiasmé con ello y por varios años fui socio de Ascochinga. Finalmente, mis obligaciones académicas, pero sobre todo, mis nueve hijos, compitieron con las dos restricciones fundamentales que enfrenta el ser humano: la restricción temporal, y la restricción presupuestaria, que Norberto supo manejar, quizá por estar más orientado a las ciencias empresariales.

Desde el momento en que nos incorporamos con dedicación exclusiva al Instituto, el 11 de septiembre de 1962: ¡que fecha, 11 de septiembre, el día que honra a Sarmiento! Norberto dejó de ser director de la Biblioteca Manuel Belgrano, quedando como asesor de la dirección; pero dirigiendo la biblioteca del Instituto. Conocía todos los libros y artículos que ingresaban a ambas bibliotecas. Ello, sumado al conocimiento sobre libros que traía ya desde estudiante (Norberto siendo todavía estudiante tenía ya una muy importante biblioteca sobre ciencias económicas), hizo que fuera nuestro asesor en cuestiones de bibliografía para cualquier tema que tuviéramos que encarar. En términos actuales, diríamos que era nuestro Google, y que cuando lo "googleábamos" nos respondería con más veracidad que wikipedia!.

Antes de finalizar, quiero compartir con ustedes las respuestas recibidas al correo que yo enviara, pues son significativas del respeto y cariño que se había ganado Norberto: La Vicedecana (y miembro del Instituto) María Luisa Recalde, agradeciéndome y pidiéndome saludara a la familia, ya que no podría asistir a Los Álamos por razones de salud.

Juan Carlos de Pablo, de la Universidad de San Andrés y "depabloconsult", me fue solicitando información sobre Norberto. En su carta semanal "Contexto" se preguntó -como hace siempre en todas sus biografías-

¿Por qué los economistas nos acordamos de tal economista fallecido -en este caso- de Norberto García? La respuesta de de Pablo: "Por sus trabajos sobre balanza de pagos, que publicó en 1972 y 1974". También se pregunta: ¿Por qué tan pocos trabajos en economía? A lo cual yo le respondí (y el publicó): "Porque después de escribir su libro sobre balanza de pagos, se pasó al área contable (mejor dicho, al de ciencias empresariales). Fue un pionero en aplicar los conceptos económicos para determinar la situación económica y no meramente financiera de las empresas, es decir, aplicar el concepto de costo de oportunidad. Fue una especie de William Leslie Chapman para el área contable" (de Córdoba). Sus trabajos sobre ciencias empresariales tienen la visión del economista.

Víctor Jorge Elías, de la Universidad Nacional de Tucumán, me envió con gran pesar sus saludos para la familia y miembros del Instituto, diciendo sobre Norberto: "Lo recuerdo como una persona muy dinámica, con gran interés en desarrollar diversas actividades en la facultad. Su trabajo para la biblioteca fue muy meritorio, la UNC tiene una de las mejores bibliotecas de economía del país. Se lo veía muy contento en nuestra profesión".

Y Héctor Gertel, me escribe: "Gracias Rinaldo por tu tiempo dedicado a preparar esas pocas palabras que resumen exactamente la generosidad de espíritu y la vocación de progreso intelectual que generaba Norberto permanentemente".

Para finalizar, conviene recordar que desde hace algunos años su otra pasión (además del golf) pasó a ser esta Escuela de Graduados, que supo dirigir con eficiencia y gran sentido común. Respetó siempre lo que los profesores pensábamos que debíamos enseñar, en relación a los objetivos (en mi caso) de la Carrera de Doctorado y a los conocimientos y posibilidades de rendimiento de los estudiantes.

Norberto, te fuiste sin que pudiera concretar –debido a mi restricción temporal- mi vieja idea de escribir –con tu asesoramiento- la historia de la Facultad. Espero poder escribirla y plasmar las anécdotas que solíamos recordar, aunque muchas ya se fueron contigo. Pero es mi firme propósito.

The Impact of Taxes and Expenditures on Poverty and Income Distribution in Argentina and Some Policy Simulations | *Darío Rossignolo*
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The Impact of Taxes and Expenditures on Poverty and Income Distribution in Argentina and Some Policy Simulations

El impacto de los impuestos y gastos sobre la pobreza y la distribución de ingresos en Argentina y algunas simulaciones de políticas

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Abstract

Using standard fiscal incidence analysis, this paper estimates the impact of tax and expenditure policies on income distribution and poverty in Argentina with data from the National Household Survey on Incomes and Expenditures 2012-2013. The results show that fiscal policy has been a powerful tool in reducing inequality and poverty but that the unusually high levels of public spending may make the programs unsustainable. The impact of several policy measures carried out by the government have also been simulated.

Keywords: Taxes, public expenditures, inequality, poverty.

JEL codes: H2; I3; D3.

Resumen

Utilizando un análisis de incidencia fiscal estándar, este trabajo estima el impacto de las políticas tributarias y de gasto público en la distribución del ingreso y la pobreza en Argentina con datos de la Encuesta Nacional de Gastos de los Hogares 2012-2013. Los resultados muestran que la políticas fiscal ha sido una poderosa herramienta en la reducción de la desigualdad y la pobreza pero los inusualmente elevados niveles de gasto público podrían hacer que los programas resulten no sustentables. Se ha simulado también el impacto de algunas medidas de política fiscal llevadas a cabo por el gobierno.

Palabras clave: impuestos, gastos públicos, desigualdad, pobreza.

Código JEL: H2; I3; D3.

I. Introduction

Public policy design requires knowledge of how benefits and taxes are distributed across different welfare levels. This study evaluates the impact of taxes and public expenditures on income distribution and poverty to determine whether they reduce income inequality and poverty or, conversely, if they indirectly exacerbate income inequality.

This paper estimates the impact of tax and expenditure policies on income distribution and poverty amelioration in Argentina using the CEQ methodology with data from the National Household Survey on Incomes and Expenditures (ENGHo), which was conducted by the National Bureau of Statistics in Argentina from March 2012 to February 2013. Consequently, the paper uses the codes for taxes and public expenditures from 2012.

The project Commitment to Equity (Commitment to Equity Institute, Tulane University, New Orleans, USA) has advanced in the harmonization and coordination of the effects of the different dimensions in which public sector intervenes in the economy with the aim of reducing poverty and inequalities on income distribution.

The results show an important incidence of fiscal policy in Argentina for the reduction of inequalities and poverty levels. However, several issues should be taken into account when considering their sustainability; consequently, three different policy simulations (similar to the ones already carried out by the government) have been performed and their results were compared with the benchmark case

The study is organized as follows: section 2 briefly reviews the results of previous studies on the impact of taxes and expenditures on income distribution. Section 3 outlines Argentina's tax structure and the quantitative evolution of its taxes and expenditures. Section 4 introduces the data source and incidence assumptions for the CEQ analysis of the impact of taxes and expenditures; section 5 presents the regulatory framework for the taxes and expenditures included in the incidence analysis. Section 6 summarizes the results of the incidence analysis on income distribution and poverty, while Section 7 delivers the results of the policy simulations. Section 8 offers concluding remarks.

II. Results of Previous Studies on the Argentina Case

Several studies on Argentina have analyzed the impact of taxes and expenditures, together or separately, on income distribution. However, very few have analyzed their impact on poverty (some have tried to capture the impact of specific social programs) and no one has estimated the impact of taxes on poverty. This is the first study to use CEQ methodology (Lustig and Higgins, 2013 a, b) to examine the effects of taxes and expenditures on income inequality and poverty reduction in Argentina.

Some research on tax incidence analysis in Argentina is available. Gasparini (1998) performs an analysis of the distributional impact of the tax system for 1996, taking per capita income and per capita consumption expenditures as welfare indicators. In the first case, taxes are highly regressive; meanwhile, when per capita consumption is considered, the incidence is moderately progressive. Gómez Sabaini, Santiere, and Rossignolo (2002) analyze the impact of taxes on income distribution for 1997, considering per capita income adjusted for underreporting as a welfare measure. The incidence is regressive in this case, chiefly because of VAT and indirect taxes.

Gómez Sabaini and Rossignolo (2009) consider the incidence of taxes for 2006, considering again per capita income adjusted for underreporting. Here, the impact of taxes is moderately progressive, mainly due to export taxes and the increase in the importance of Income Tax and Payroll taxes, measured by the Gini coefficient. However, since differences in extremes (that is, decile 10 versus decile 1) increase, the authors determine that the system continues to have a regressive impact. Gómez Sabaini, Harriague, and Rossignolo (2013) arrive at similar conclusions with information on taxes for 2008.

SPE (2002) and SPER (1999) perform different estimations on public expenditures for Argentina; their results show an unequivocal reduction in inequality. Gasparini (1999) arrives at similar results; benefits of public expenditures are received more strongly by lower income brackets.

In the case of poverty, several studies have analyzed the impact of specific programs on poverty reduction, such as Maurizio (2009), who explores the impact of different monetary transfers, and Marchionni et al. (2008), who examine the impact of simulated tariff schemes.

The net effect of taxes and public expenditures on income distribution has been calculated in Gasparini (1999), SPE (2002), Gaggero and Rossignolo (2011), and Gómez Sabaini, Harriague and Rossignolo (2013), among others. Although the methodologies differ to a certain extent (one study considers a balanced budget; another effective tax collection), all the studies find that the two highest income quintiles transfer resources to the lowest ones. Although the studies find that the magnitude of the redistributional impact varies, all of them note a significant equalizing effect.

Following CEQ methodology, Lustig and Pessino (2013) assess the growing importance of noncontributory pensions in Argentina in the last decade, emphasizing the effect of government policies, such as the Asignación Universal por Hijo or the Moratoria Previsional through the Encuesta Permanente de Hogares. This analysis used data from ENGHo 2012-2013and from the tax side of the budget.

CEQ methodology calculates separately every fiscal intervention. Calculation of the effects of the different participations of public sector starts from considering Market Income as income from productive factors as the baseline income from which these policies operate. Two alternatives are considered; the Benchmark Case, in which pensions are considered as a part of Market Income, and a Sensitivity Analysis, in which said pensions are considered as a public transfer. Net Market Income is obtained by subtracting direct taxes and social security contributions, and by adding up monetary transfers Disposable Income is obtained. Detracting indirect taxes and adding economic subsidies we arrive at Consumable Income; while by adding up health and education Final Income is obtained.

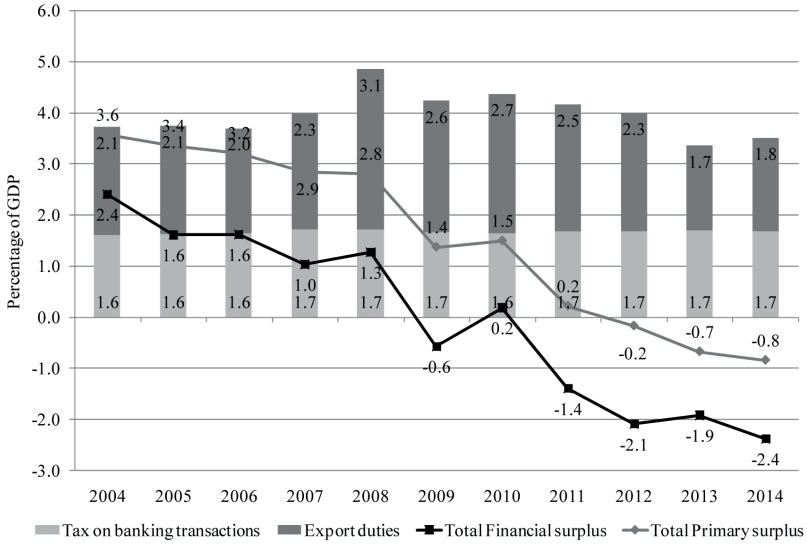
The analysis presented here differs from the above studies in that it measures the impact of taxes and spending combined not only on inequality but also poverty. In addition, except in one case, the existing studies rely on information by decile rather than the entire distribution and except in one case, they do not include the analysis of price subsidies. Another important difference is that existing studies which look at both taxes and expenditures assume a balanced budget and scale up the totals by decile to equal totals for the same items from budgetary data. In contrast, following CEQ, in this study, totals were neither scaled up nor a balanced budget was assumed.

III. Behavior of Tax Structure and Expenditures in Argentina

In economic terms, Argentina's history has involved many crises and subsequent recoveries. The crisis that resulted from the termination of the currency board regime ended with a devaluation of the Argentine peso and a slump in economic activity (real GDP fell by 15.5% in 2001-2002) and with unemployment and poverty figures reaching high levels (unemployment climbed to 18.4% of the labor force, and 24.7% of the population suffered from extreme poverty in 2001).The process of economic recovery began in 2003: production, investment, consumption and employment all rose. Between 2004 and 2008, the GDP grew 8.4% annually. Between 2009 and 2014, there have been periods of economic growth combined with decreases in GDP, such as in 2009, 2012 and 2014.

The Argentinean public sector is marked by a long history of structural imbalances. Figure 1 shows the progression of the primary and total surplus beginning in 2004. The public sector surplus declined from an average 2.8% of GDP between 2004 and 2008 to 0.4% between 2009 and 2013,

Figure 1: Taxes on Banking Transactions, Export Duties, Primary and Total Surplus in Argentina (2004-2014)



Source: Ministry of Economy and Public Finance.

while the primary surplus represented a 1.4% average and a 1.1% average deficit for the same periods. From 2009 on, budget surplus has been declining, with deficits for both cases from 2012 on.

The features of the tax policy implemented until the 2001 crisis were different from those of the past few years, when exceptional growth was achieved owing to the foreign sector and tax income. The fiscal surplus of the first part of the decade was mainly due to tax revenues increasing at a greater rate than expenditures, which was not the case after 2011.

Argentina has experienced exceptional growth in tax burden in the last decade, reaching 32.5% of GDP in 2014.[1] During these years, the country saw increasing tax-burden levels. This was partially due to the major impact of "extraordinary taxes"[2] which represented 4.3% of GDP in 2008 (more than half of which resulted from export duties) and which, in 2010, decreased slightly but reached 4% of the GDP; elimination of the private-funded pension system also partially explains the rise in tax burden.

Additionally, sustained growth in tax collection from traditional taxation (VAT, income tax and payroll taxes) confirms the usual assumption that tax administration achievements are more effective during economy-recovery periods.

The increase in tax burden in the last decade is related to the addition of taxes that were sporadically used in previous periods, such as export duties (withholdings) and current account debits and credits, and to other provisions that impacted Corporate and Personal Income Tax (no inflation adjustments of financial statements and thresholds).

The lack of immediate adjustment of thresholds and tax brackets helped increase tax revenues from Personal Income Tax. This process, known as fiscal drag or "bracket creeping," is illustrated by the fact that in 1997, almost 12.5% of taxable income was concentrated in the highest tax bracket, subject to the highest marginal tax rate; in 2011, that percentage was 58% (Gómez Sabaini and Rossignolo, 2014).

1. Gross Tax Burden, excluding reimbursements.

2. "Extraordinary taxes" comprise Current Account Credits and Debits and Export Duties.

In 2008, Social Security contribution revenues gained importance, constituting the highest direct tax revenue source; resources from the eliminated capitalization system (implemented in the 1990s) were used by the government to establish the pay-as-you-go system.

On the expenditures side, public expenditures at all government levels have increased from 26% of GDP in 2004 to around 45% in 2013. The evolution of social expenditures in Argentina in the last decade can be divided in three stages (Gómez Sabaini, *et al*., 2013).

The first stage stems from the socioeconomic crisis that the country experienced at the beginning of the last decade, which led to the creation of several emergency programs to ameliorate the impact of the crisis, including Plan Jefes y Jefas de Hogar Desocupados (PJyJHD); Programa Ingreso para el Desarrollo Humano (IDH), Programa Remediar in the health arena, and Programa de Emergencia Alimentaria (PEA) in the nutritional arena.

In the second stage, between the economic recovery and the economic crisis in 2008, more structural solutions were implemented, such as the Moratoria Previsional (a sort of "early retirement program" with a moratorium for those who do not complete the 30-year requirement),and the Ley de Financiamiento Educativo to increase education spending to 6% of GDP. Additionally, the Plan Jefes y Jefas de Hogar Desocupados (PJyJHD) was divided in two components: Plan Familias por la Inclusión Social (PFIS) and Seguro de Capacitación y Empleo (SCE).

In the third stage, which started in 2008, the government's main goal is to maintain income and employment at pre-crisis levels. To that end, the previously-mentioned elimination of the capitalization system led to the creation of the Sistema Integrado Previsional Argentino y Movilidad Jubilatoria (SIPA) and a mandated periodic increase in pensions. Additionally, the creation of a universal program, Asignación Universal por Hijo (AUH), extended the benefits that formal workers receive related to the number of children they have to those in the informal sector and the unemployed.

Aside from the increase in social expenditures, expenditures on economic services, i.e. subsidies to tariffs, have increased greatly, averaging 5% to 6% of GDP from 2012 to 2013. These expenditures were primarily

designed to prevent tariffs to services (mainly transportation and energy) from increasing in the area around greater Buenos Aires.

IV. Incidence Analysis: Methodological Notes

The main source of information for this report was the National Household Expenditure Survey (Encuesta Nacional de Gastos de los Hogares – ENGHo), conducted by the Instituto Nacional de Estadística y Censos – INDEC between March 2012 and February 2013. The ENGHo is a large-scale survey that obtains detailed answers from about 20,960 households across the country (around 36.1 million total inhabitants). The ENGHo is a representative sample of 86.8% of the population. A percentage of the urban population and rural towns with fewer than 5000 inhabitants were excluded from the sample due to high administrative costs (INDEC, 2012).

The main survey variables used in this study are household expenditure and income. In order to define and analyze different domains and depict the households they include, the survey also contains information on demographic, occupational and educational variables, as well as housing characteristics, transfers in kind received and household goods.

The incidence analysis to which most studies refer is the so called "differential incidence", which is carried out utilizing methodology applied in the equilibrium economic analysis. Two approaches can be mentioned here: on one hand, partial equilibrium analysis, in which a particular market is considered separately and the effects of changes in taxes or public expenditures are analyzed within that market.

On the other hand, incidence in a general equilibrium framework, in which all effects, direct and indirect, are taken into account. Here, second round effects are calculated for a general equilibrium framework but are disregarded in a partial equilibrium analysis. these indirect effects may introduce differences between equity effects resulting from both methodologies. Partial equilibrium analysis is however more useful when evaluating the effect of specific policy measures because the disaggregation used in the required data is much higher.

4. Lustig and Pessino (2013) analyze the sustainability of redistributional policies applied in Argentina.

The incidence analysis performed in this paper, consistent with the partial equilibrium literature, is the accounting approach, which tries to account for who pays the taxes to the state. In some cases, that information may be obtained directly from sample surveys, although some inference may be necessary; taxes may not be directly observed in surveys and may have to be figured out indirectly. According to Bourguignon and da Silva (2003), indirect methods involve applying official income tax schedules or imputing indirect taxes paid through observed spending.

Accounting approaches, however, ignore possible behavioral responses by agents that may modify the amounts they actually pay or receive; an accounting approach would not detect tax evasion, for example, resulting from an increase in income tax rates. These approaches are limited to first-round effects and do not consider second-round effects attributable to behavioral responses, which behavioral approaches try to take into account.

The methodology used here to estimate the incidence of taxes and expenditures adopts different assumptions about the shifting of the tax burden because, in most cases, the person liable for the tax or the person entitled to receiving the benefit is not the person who ultimately bears the tax burden or effectively gets an increase in their income. Both sellers and buyers may adapt to the tax by shifting it in accordance with its different elasticities: the smaller the (offer or demand) elasticity, the smaller the possibility of shifting the tax and the higher the impact on the person bearing the burden.

Therefore, there are various alternatives for measuring the impact of taxes and estimating their incidence. In this study, as in the majority of studies based on a partial equilibrium framework, it is assumed that the burden generated by taxes on goods and services is fully shifted to consumers via a higher price. Even though this seems to be the most widely used method for approximating the compensating variation, there are some inherent difficulties in establishing these kinds of hypotheses and, more importantly, some defects in other assignment mechanisms that should not be ignored (Sahn and Younger, 2003).

This study assumes no tax evasion in general, which means that all the people due to pay taxes, according to their incomes or consumption expenditure behavior, bear the tax burden. However, if purchases have been made in the informal market, it is assumed that no taxes have been paid.

In order to account for the incidence of direct taxes, it is commonly assumed that the burden of PIT and other taxes related to income falls on the person required to pay them (income earner), i.e. the economic incidence is the same as the statutory incidence. For Corporate Income Tax and Social Security contributions, the incidence assumption is not so straightforward. A general equilibrium model is necessary to account for the final incidence; specifically, for Social Security, how much of the burden is borne by employers and employees, and for CIT, how much is borne by capital owners or employers and how much is transferred on to consumers via a higher price. The latter is difficult to account for in a household survey, but the former can be calculated if it is assumed that the tax is completely borne by employees through a reduced salary. Consequently, CIT has been left aside.[4]

Due not only to the absence of relevant information (mainly data related to the decrease in disposable income of the producers once export taxes have been collected) but also to the different economic effects outside the scope of a standard, exclusively fiscal incidence analysis, export duties, which represented 2.3% of GDP in 2012, have been excluded from this analysis. Gómez Sabaini and Rossignolo (2009), and Gómez Sabaini, Harriague, and Rossignolo (2014), following a different methodology than the one used here, conclude that these taxes are progressive following the standard Gini and concentration coefficients.[5]

Information on direct taxes is rarely gathered directly by surveys; instead, surveys report earnings. Depending on the source of income, the amount reported is usually, though not always, after taxes. Salaried workers in the formal sector report income after taxes. For informal salaried workers, employers, independent workers, capital income earners, social security beneficiaries and people receiving pensions and transfers, reported income reflects earnings before taxes. To get at the tax burden, tax revenues should be computed from all these income sources, assuming that they are taxable income.

4. These criteria are usual in the literature. However, if, for instance, CIT incidence were calculated, it could be the case that its incidence were borne by company owners (shifted backwards) or passed though to consumers via a higher price. Tax incidence would be progressive in the first case and regressive in the second.

5. Other taxes that were excluded from the analysis were taxes on banking transactions (1.7% of GDP) and taxes on property (1.3% of GDP) due to lack of relevant information in the survey. Gómez Sabaini and Rossignolo (2009) estimates show that the first are regressive while the second are progressive.

On the expenditure side, it is assumed that the beneficiaries of a program are the users and their families who receive free or subsidized public provisions. This assumption means that the potential benefits that could accrue to production factors are ignored, as are the externalities that may arise from the consumption of publicly provided goods (ideally, the equivalent variation for every individual would be calculated to assess the complete incidence).

V. Regulatory and Methodological Considerations of Taxes and Expenditures in the Incidence Analysis

This section explains the characteristics of the taxes and expenditures analyzed in this study. The indirect taxes considered were the Value Added Tax, excise taxes, fuel taxes and the provincial turnover tax; the direct taxes analyzed were Personal Income Tax, payroll taxes and other minimum taxes on income ("Monotributo"). These taxes represent about 71% of total tax revenues (national and provincial) for 2012; of that 71%, 80% could be simulated with the estimations provided here.

On the expenditure side, we have classified the Asignación Universal por Hijo as the flagship cash program. The Plan de Inclusión Previsional y Moratoria Previsional has been included in the Noncontributory Pensions category. In Other Cash and Near Cash Transfers, the programs Asignaciones Familiares, Seguro de Capacitación y Empleo, Programa Familias por la Inclusión Social, Becas Universitarias, Programa Jóvenes con Más y Mejor Trabajo, Seguro de Desempleo and Comedores Escolares y Comunitarios are included. Total public expenditures on education and health represent about 76% of total social expenditures, rising to 83% when Contributory Pensions are counted as a public transfer in 2012; these estimations account for about 62% of social expenditures estimated in this study. Economic subsidies to transportation, electricity and gas services have also been calculated. Table 1 presents the aggregate figures for taxes and public expenditures as percentage of GDP (2012).

Due to discrepancies in the official Argentine statistics for the calculation of GDP, all calculations that involved the association of nominal values with values in the survey were "scaled down" by 22% to attempt to account for the difference in GDP calculated with year base 1993 and GDP with year base 2004.

Table 1: Government Spending and Revenue Structure in % of GDP 2012

Government Spending and Revenue	Percentage of GDP
Total Government Spending	44,1
Social Spending (excludes contrib pensions)	20,9
Direct Transfers (Total Cash & Near Cash Transfers)	5,8
Flagship Cash or Near Cash Transfer program	0,5
Noncontributory Pensions	2,9
Other Cash and Near Cash Transfers	2,4
Total In-kind Transfers	**13,1**
Education	7,4
Basic (primary and secondary)	7,5
Tertiary and University	4,6
Science, culture and education non discriminated	1,5
Health	5,6
Contributory	3,2
Noncontributory	2,5
Housing and Urban	0,6
Other Social Spending	**1,3**
Contributory Pensions	**7,1**
Non-Social Spending	14,1
Indirect Subsidies	5,9
Agriculture	0,3
Energy, fuel and mining	2,6
Industry	0,1
Transportation	2,4
Communication	0,2
Other indirect subsidies	0,3
Other Non-Social Spending	8,2
Debt Servicing	
Interest payments	2,1
Total Tax Revenue	32,7
Direct Taxes	2,2
Personal Income Tax	2,1
Simplified Tax Regime (Monotributo)	0,1
VAT and Other Indirect Taxes	12,3
Other Taxes	18,1
of which Social Security Contributions with Pensions	8,8

Source: Author´s calculations based on information from the Ministry of Economy and Public Finance.

5.1. Indirect Taxes

Value Added Tax (VAT): VAT is a consumption tax on all stages of the production and distribution of goods and services. It is not cumulative and uses the "tax against tax" system, where the balance between tax credits (charged to sales) and tax debits (charged to purchases) is paid to the seller every month. This procedure is equivalent to applying the tax on the value added at every elaboration stage. It is levied on imports in a similar way to domestic production, but exports are zero rated.

The general tax rate is 21%. There are few exemptions because most have been eliminated in successive reforms.[6] There are also differential rates: the highest is 27% on the invoices of public services provided to companies that are liable for the tax; the lowest is 10.5% on new home sales and a very limited list of goods and services.[7,8]

Excise taxes (Impuestos internos): These taxes apply to the domestic sale and import of a specific list of goods and transactions: alcoholic beverages (20%), beer (8%), soft drinks and other nonalcoholic beverages (4% to 8%), automobiles and diesel engines (10%), and insurance (2.5%).

For all taxes on goods, the taxable basis includes the tax itself. The taxable basis is the net price billed by the responsible party, defined as the remainder after deduction of discounts and bonuses, financing interest, and the VAT generated by the operation. In the case of cigarettes, the taxable basis is the sale price to the end user, excluding the VAT; in the case of insurance, the taxable basis does not include the tax itself, which is the only case in domestic taxes where the legal or nominal rate is applied to the taxable basis.

6. Among exemptions with considerable tax collection importance in 2012 were books, brochures and similar printed material, natural ordinary water, milk without additives, buyers who are end consumers or tax-exempt individuals, medicines, goods at the resale stage and for which the tax has been paid at the import or manufacturer's stage, theater performances, international passenger and cargo transportation, and life insurance.

7. The lowest tax rate includes some basic foods (meat, fruit, vegetables, bread), newspapers, magazines and periodical publications, goods at the selling stage to the general public, and domestic transportation services for passengers by land, water, or air, except for taxis and rental car services on routes less than 100 km.

8. In the case of exempt goods, the 1997 Input / Output table was used, with data from 1993. The taxable input proportion was estimated for each exempt good: the incidence of taxable inputs was estimated for the sales amount of exempt goods, and the same structure was applied to the total of VAT purchases deriving from the consumption of exempt goods.

Fuel tax: In 2012, liquid fuel and natural compressed gas were taxed (62% to 70%). Among fuels, the tax is applied to all forms of gasoline: solvent, turpentine, gas oil, diesel oil and kerosene. For gas, the tax falls on compressed natural gas for motor vehicles, distributed through pipelines. The tax must be applied in a single circulation stage for the sale of national or imported products. Importers of liquid fuel and companies that refine or market it are subject to the fuel tax, as are distributors of gas before it enters the pipeline.

The tax is calculated by applying the corresponding rate to the net sales price listed on the invoice or similar document for resellers at the dispatching plant, issued by the persons liable for its payment.[9]

Provincial Turnover Tax: This tax is an important source of revenue for the sub national governments and is applied by all provinces. It is a cascade tax because it falls on all stages of production and distribution of goods and services. It taxes gross income without deducting the tax already paid and cumulated through previous purchases in the production process. Because it forces vertical integration of firms and discriminates in favor of imports which do not contain taxes paid on every production stage, the provincial turnover tax alters neutrality.

Tax rates follow similar patterns across the country; however, rates vary highly due to differences in economic activities and corresponding jurisdictions. In general, the highest rates appear in Commerce and Services; intermediate rates are applied to Industrial activities, and the lowest rates occur in the Primary sector.

In order to calculate tax incidence, the aforementioned tax rates were applied to the data on consumption reported in the household survey. According to several authors including Rossignolo(2015)[10], effective tax rates are at least twice as high as rates on final consumption; consequently, rates on retail consumption have increased 150% in order to account for the taxes included at every production stage for every province. The methodology

9. Alternatively, although there is no reliable study in Argentina determining the percentage of fuel cost that is part of the transportation cost transferred to the consumer, at present, and basically due to the existence of transportation and fuel subsidies distorting relative values, we assumed that 30% of the tax is transferred.

10. Rossignolo (2015) presents a calculation of the effective rate of this tax.

applied is the same as that for VAT and excise taxes; since the tax base excludes VAT, excises and fuel tax, this tax is the closest to input costs and should be included in the tax base of the previously mentioned taxes.

V.2. Direct Taxes

Personal Income Tax: PIT is a global type tax, structured with progressive rates; its taxable base has been expanded by several pieces of legislation. The Income Tax Act delineates four categories of income based on their source (land rent, capital gains, company and certain business brokers' income, and personal income). A single taxpayer may generate income corresponding to one or more income categories at the same time. The calculation of the taxable income is based on the income and expenses corresponding to the four categories and on the participating interests in companies or activities.[11]

The tax is determined by taxable net income bracket, based on a sliding scale consisting of a fixed amount plus a rate increasing from 9% to 35% on the excess of each income bracket bottom level. Individuals paying income tax fall into one of the two following categories: self-employed taxpayers or salaried workers. Self-employed taxpayers (that is, independent workers registered as income tax payers) must pay income tax each fiscal year in five bi-monthly advance payments.

Other income taxes ("Monotributo"): One group of taxpayers, referred to here as small taxpayers, is subject to a simplified tax regime called Monotributo. This regime replaces the Income Tax and Value Added Tax with a single fixed-amount monthly tax plus contributions for Social Security and Health Insurance. Under this regime, the single tax payment is based on an income bracket and no further rules related to the assessment of income, deductions for dependents or special deductions are applied.

The tax levied is a fixed amount established according to the Monotributo category into which taxpayers fall. These categories are deter-

11. There are numerous subjective and objective exemptions. The most important among the latter are those on interest accrued on saving accounts deposits, special saving accounts and term deposits, income derived from securities, shares, bonds, bills of exchange, notes and other securities issued or to be issued in the future by a governmental authority, the rental value of the residence when occupied by its owners, etc. The following items are not exempt: pensions, retirement payments, subsidies, and salaries received during medical leave.

mined based on invoicing and/or the surface area of the facilities and/or the use of power during production.

Payroll taxes: As a part of the tax system, taxes on wages were analyzed, including contributions made by both the employee and the employer. In both cases, the amount collected is deposited into the Federal Tax Administration and that revenue is distributed according to the corresponding legal provisions.

For formal sector employees, the items considered are contributions to the social security system (11%), health insurance (3%), and the national pensions fund (3%), up to a ceiling of AR$ 21,248 monthly (maximum taxable base). This amounts to a total rate of 17%.

In the case of employers, the items considered are contributions to the social security system (12.71%), health insurance (6%), the national pension fund (1.62%), the fund for family allowances (5.56%) and the national employment fund (1.11%), which amounts to 27% of earnings in the formal sector. This rate pertains to employers whose activity is concentrated in the services sector; for other employers, the rate is 23%.

In the case of independent workers, the items considered are their contributions to the social security system (27%) and the national pensions fund (5%). These rates are applied to a scaled tax base that is progressive and differs between professionals and traders. These workers have been identified in the household survey by years of education.

V.3. Flagship Cash or Near Cash Transfer programs

Asignación Universal por Hijo

Target population: Parents with dependent children under the age of 18 who are informal workers with an income lower than the minimum salary of the formal sector, unemployed people without unemployment benefits, or domestic service workers.

Targeting mechanism: A monthly monetary transfer of AR$ 270 per child in 2012, raised to AR$ 340 in September 2012. Benefits are received

for each of up to five children. The first 80% of the benefit is received by direct deposit into a bank account; the remaining 20% is transferred with proof that the children are attending school and have received the compulsory vaccines. This benefit includes a means testing mechanism in the sense that beneficiaries cannot receive other social benefits while receiving Asignación Universal por Hijo.

V.4. Non-contributory Pensions

Pension Moratorium (Moratoria Previsional) and the Early Retirement Program (Jubilacion Anticipada)

Target population: In 2005, the government instituted an early retirement program through a moratorium for those who had not completed 30years of service (Pension Moratorium (Moratoria Previsional). In 2007, a program that allowed workers who had completed the required 30years of service but who were at least five years younger than the official retirement age(65 for men, 60 for women) to receive the pension (Jubilación Anticipada) was also instituted.

Targeting mechanism: For the Jubilación Anticipada, the transfer is equivalent to 50% of the corresponding benefit that the person would be entitled to receive at full retirement age, although it cannot be lower than the minimum pension. For the Prestación por Moratoria, the beneficiaries receive their transfer net of a reduction that corresponds to the number of years the person has not contributed to the system. As years of contribution cannot be established in this paper, the program simulated here compensates the pensioners who are receiving a lower-than-minimum pension in order to reach the minimum threshold.

V.5. Other Cash and Near Cash Transfers

Asignaciones Familiares

Target population: Salaried workers in the formal sector who have children up to 18 years of age and salaries under the limit as well as pensioners and unemployment compensation beneficiaries with children under 18. The program covers marriage, children, adoption, disabled children,

among other monthly transfers, and school attendance for children, paid once a year.

Targeting mechanism: Formal salaried workers receive their benefits according to their income level and to the number of beneficiaries they declare. For instance, the fixed amount for every child in June 2012 was AR$ 270 if the worker's salary was between AR$100 and AR$ 2.800; the amount decreased to AR$ 204 for a salary between AR$ 2.800 and AR$ 4.000, and to AR$ 136 for a salary between AR$ 4.000 and AR$ 5.200. These amounts varied by geographical zone, being higher in the southern region of the country. A household might be excluded from this benefit in the absence of either children or a head of household working in the formal sector, if the head of household is retired or unemployed and receiving unemployment benefits, or if the head of household is earning an income higher than the maximum allowed for the benefit (AR$ 5.200 per month in 2012).

Seguro de Capacitación y Empleo

Target population: Beneficiaries of the previous Programa Jefes y Jefas de Hogar, including those with greater employment prospects.

Targeting mechanism: The beneficiaries of the Jefes y Jefas de Hogar Program, which was created in 2002 to ameliorate effects of rising unemployment through an initial monthly transfer of AR$ 150, were divided in two groups according to their employment potential. Those considered more "employable" were assigned to the Seguro de Capacitación y Empleo, a 24-month monetary transfer of AR$ 225 for the first 18 months and AR$ 200 for the remaining six months. The beneficiaries must comply with regulations such as attending courses to increase their employment skills

Programa Familias por la Inclusión Social

Target population: The beneficiaries of the previous Programa Jefes y Jefas de Hogar, including those with fewer employment prospects.

Targeting mechanism: The beneficiaries of the Jefes y Jefas de Hogar Program, which was created in 2002 to ameliorate effects of rising unemployment through an initial monthly transfer of AR$ 150, were divided in

two groups according to their employment potential. Those considered less "employable" were assigned to the Programa Familias por la Inclusión Social, which is received according to the number of dependent children under age 18, from two to six children. The benefit starts at AR$ 155 per child and increases to AR$ 380 for six children or more for families below the poverty line. The program is not compatible with other transfers.

Becas Universitarias

Target population: PNBU (Programa Nacional de Becas Universitarias) is for university students attending an officially recognized program of any national university; it excludes students in their last year of study and those planning to start their careers.

Targeting mechanism: Beginning in 2009, students have received AR$ 3000 in 10 installments throughout the year. There are other two compensation programs, Programa de Becas Bicentenario, for students preparing for scientific careers, and Programa Nacional de Becas de Grado, for students of information technology. This study might overestimate the amount received because it cannot establish which program the beneficiaries are studying.

Programa Jóvenes con Más y Mejor Trabajo

Target population: People between 18 and 24 years of age who neither work nor study.

Targeting mechanism: The beneficiaries must be unemployed, with incomplete primary or secondary education, and between 18 and 24 years of age. The amount of the transfer is AR$ 150 a month for 2 to18 months; in addition, transfers are made against the presentation of a project for which the beneficiary receives AR$ 4,000 per project.

Seguro de Desempleo

Target population: Workers who have lost their jobs through no fault of their own and have been unemployed for at least 36 months.

Targeting mechanism: A transfer of between AR$ 250 and AR$ 400, calculated as a percentage of the highest previous salary. Maximum coverage lasts one year.

Comedores Escolares y Comunitarios

Target population: Schools, clubs, etc., that serve meals to children or the unemployed.

Targeting mechanism: Monetary transfer related to the cost of milk or a basic food basket provided to feed children or adults below the poverty line.

V.6. Economic Subsidies

Subsidies to economic sectors are directed to transportation, communications, energy and fuel, industry and agriculture, and other sectors. The most important subsidies are those for transportation, energy and fuel; transportation subsidies are mainly oriented to supply, whereas energy and fuel are oriented to both supply and demand. Subsidies to energy include fuel, gas and electricity; subsidies to transportation comprise tariffs for trains, subways, airplanes and buses.

After having been a net exporter of fuel in the 1990s and at the beginning of the 2000s, Argentina has become a net importer of fuel. The price of the imported gas oil is subsidized through a fiduciary fund, and the consumer receives the difference between the price of fuel within the internal market and the same product at international prices.

For gas, there are two kinds of subsidy: for those who receive gas through a pipeline, the subsidy is included in the reduced cost of imported gas, which is included in the tariff. Those who buy bottled gas pay a subsidized price in which the government gives the producers the difference between the market price and the subsidized price. The total amount paid varies depending on the volume of the previous year's gas consumption.

For electricity, a fiduciary fund has been created to subsidize tariffs for households. The subsidy depends on the volume of the previous year's electricity consumption.

V.7. Education and Health

In 2006,the National Education Law was passed following the Education Financing Law, which extended compulsory education to the end of secondary school. Data show that when compulsory education is extended, attendance increases but that students also continue to drop out at the same ages as before the law was passed (Gómez Sabaini, Harriague and Rossignolo, 2013).

There are two educational systems at every level: a free, public education system, and a private system, which is subsidized. Primary education is managed by the municipalities, secondary education is the responsibility of the provinces, and university is administered at a national level (with several exceptions at all levels). The public education system serves the majority of students, accounting for 73% of total students in 2012, of which 28.2% are enrolled in primary public schools. Public universities enroll 79% of university students. The results for the distributional impact of education aggregate expenditures for Basic Education, including initial, primary and secondary school, and Superior (universities and tertiary).[12]

The Argentine health system is split into several parts because different population groups access different providers. One component of health insurance provides coverage for the population dependent on formal wage earners or retired pensioners. Populations that are not covered have access to the public health system; high income population has access to the private system.

For formal workers, health benefits are delivered mainly through health insurance systems of trade unions, for both the private and public sectors as well at national and provincial levels. These workers comprise the greatest share of the beneficiaries. Pensioners are covered by the health insurance system known as INSSJyP (PAMI), a subsystem that finances private health service providers. The public health system covers those who do not have health insurance.

It is worth noting that the population covered by the private system can also receive public system benefits. Public expenditures for health have risen to 5.4% of GDP, 2.4% of which belong to health insurance systems.

12. For each educational level, the results for public and private subsidized education can be shown and are available from the author upon request.

Low complexity hospitals were decentralized to the provinces and municipalities in the 1990s, while the high complexity ones still remain under federal administration.

VI. EXPENDITURES, TAXES, INEQUALITY AND POVERTY REDUCTION IN ARGENTINA: MAIN RESULTS

This section presents several results of the CEQ analysis of the impact of taxes and public spending on poverty and inequality in Argentina. The main results will focus on the "benchmark case", in which pensions are a part of market income, while results from the "sensitivity analysis", where pensions are treated as a government transfer, are available from the author upon request . It can be seen, however, that when pensions are considered a government transfer, the impact in the reduction of inequality and poverty is markedly higher.

VI.1. Impact on Inequality and Poverty

The evolution of the Gini coefficient, headcount ratio and poverty gap (using the international poverty lines of US$2.50 PPP and US$4 PPP per day and the national moderate poverty lines) are presented in Table 2.

Table 2: Gini and Headcount Index for Different Income Concepts

	Market Income	Net Market Income	Disposable Income	Consumable Income	Final Income
Gini	0,481	0,435	0,403	0,401	0,303
Headcount index					
$2.5 PPP	4,7%	5,1%	1,8%	3,0%	
$4 PPP	12,3%	13,9%	7,3%	12,5%	
National Moderate PL (INDEC)	10,3%	12,0%	5,6%	9,7%	
Other Moderate PL (FIEL)	28,8%	33,1%	28,4%	37,8%	
Poverty Gap					
$2.5 PPP	1,8%	1,9%	0,5%	0,8%	
$4 PPP	4,2%	4,7%	1,8%	3,3%	
National Moderate PL (INDEC)	3,6%	4,0%	1,4%	2,5%	
Other Moderate PL (FIEL)	11,6%	13,1%	8,6%	13,0%	

Source: Author´s calculations based on ENGHo.

Market income Gini is higher than the net market income Gini, indicating that direct taxes (Personal Income Tax, Social Security Contributions and Monotributo) reduce inequality. Regarding poverty, however, the effect is the inverse, because a reduction in income due to direct taxes (mainly, in this case, Monotributo), results in a higher number of households lying below the poverty line. When direct transfers are included in disposable income, reductions in both inequality and poverty are evident; disposable income Gini declines around 16% and extreme poverty falls by 61% (Figures 2 and 3).

Figure 2a: Evolution of inequality through different income concepts. Gini coefficient.

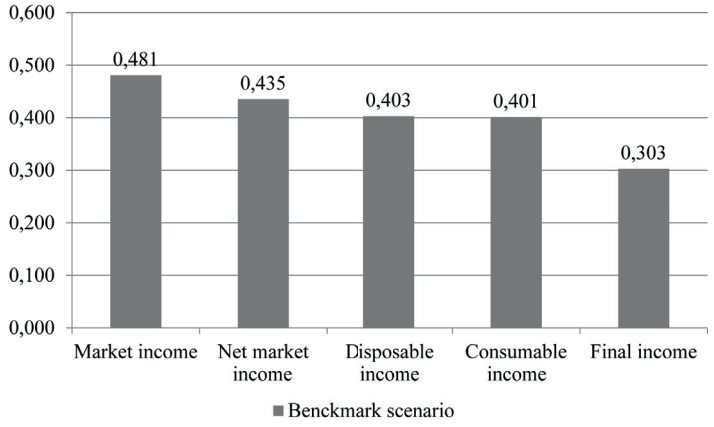
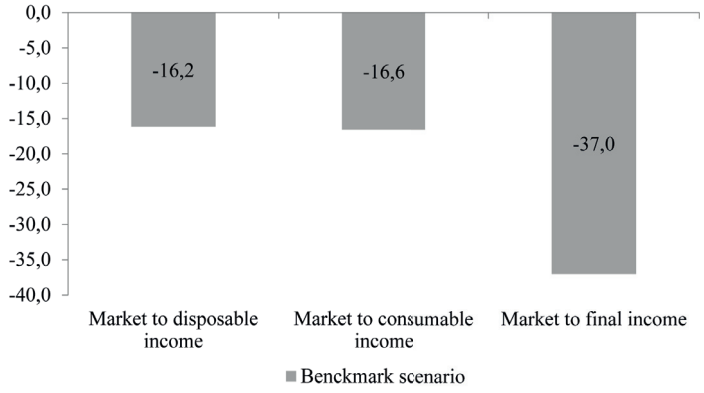
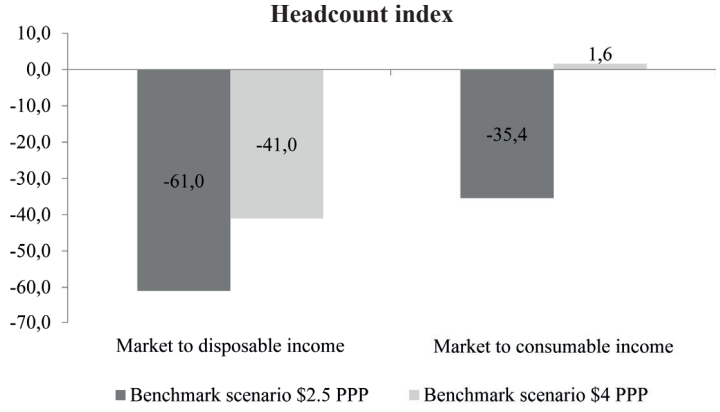


Figure 2b: Evolution of inequality through different income concepts. Percent change in Gini



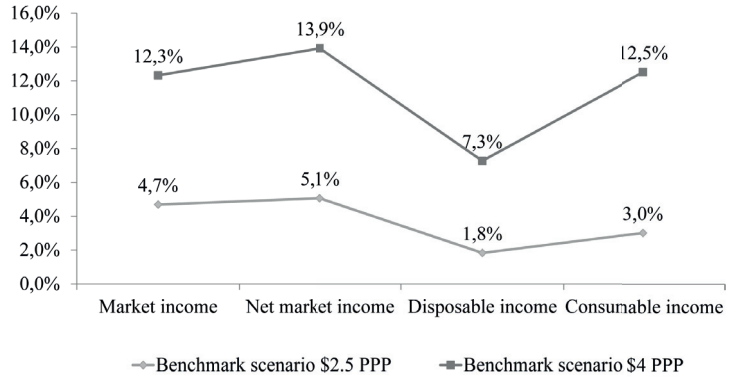
Source: Author´s calculations based on ENGHo.

Figure 3a: Evolution of poverty through different income concepts. Headcount index



Source: Author´s calculations based on ENGHo.

Figure 3b: Evolution of poverty through different income concepts. Percent change in Headcount index



Source: Author´s calculations based on ENGHo.

Consumable income includes the net effect of indirect taxes and economic subsidies. The high impact of the latter reduces poverty and more than compensates for the inequalizing effect of taxes; poverty increases because indirect taxes lie more heavily on low income consumers. The reduction in poverty and inequality is further propelled by in-kind transfers in education and health, as shown when calculating the Gini index with final income: the final income Gini (compared to the market income Gini) declines by 37%.

VI.2. Coverage and Effectiveness of Direct, In-kind Transfers and Indirect Subsidies

Table 3 presents indicators that measure the extent to which direct transfers are effective and efficient in reducing poverty using both international and national poverty lines. These indicators express a measure of "productivity" of direct transfers and public expenditure. The effectiveness

Table 3: Poverty Reduction Efficiency and Effectiveness Indicators of Direct Transfers

	Benchmark Case (national accounts)
Inequality	
Change in Gini (direct transfers)	0,58
Poverty	
Change in Headcount Index ($1.25 PPP per day)	0,20
Change in Poverty Gap ($1.25 PPP per day)	0,11
Change in Squared Poverty Gap ($1.25 PPP per day)	0,08
Change in Headcount Index ($2.50 PPP per day)	0,58
Change in Headcount Index ($4 PPP per day)	1,20
$2.50 PPP per day	
Vertical Expenditure Efficiency	0,11
Poverty Reduction Efficiency	0,04
Spillover Index	0,62
Poverty Gap Efficiency	0,71
$4.00 PPP per day	
Vertical Expenditure Efficiency	0,31
Poverty Reduction Efficiency	0,14
Spillover Index	0,55
Poverty Gap Efficiency	0,62
National Extreme PL	
Vertical Expenditure Efficiency	0,05
Poverty Reduction Efficiency	0,02
Spillover Index	0,67
Poverty Gap Efficiency	0,78
National Moderate PL	
Vertical Expenditure Efficiency	0,28
Poverty Reduction Efficiency	0,11
Spillover Index	0,60
Poverty Gap Efficiency	0,64

Source: Author´s calculations based on ENGHo.

indicator is defined as the effect on inequality (or on poverty) of the transfers being analyzed divided by their relative size (as a percent of GDP); i.e., how much Gini or poverty indicators are reduced due to direct transfers as a percent of GDP. As shown, Gini falls significantly (0.58 percentage points); moderate poverty ($4 PPP per day) falls by 1.20 percentage points due to Direct transfers.

The Vertical Expenditure Efficiency (VEE) indicator measures the amount of direct transfers that go to the poor. This indicator shows that 11% of direct transfers reach the extreme poor while 31% of direct transfers reach the total poor population (using international poverty lines). The spillover index (S) indicates how much of the spending that reached the poor was in excess of the strictly necessary amount required for the beneficiaries to reach the poverty line. As shown, the spillovers are high (62% for the extreme poor and 55% for total poor population).

The Poverty Reduction Efficiency (PRE) indicator is the product of VEE times S. Finally, the Poverty Gap Efficiency (PGE) measures the transfers' effectiveness in reducing the poverty gap. PGE estimates indicate that direct transfers are more efficient in reducing extreme poverty gaps than in reducing total poverty gaps (71% for extreme poor and 62% for total poor population).

Table 4 shows coverage levels and distribution of benefits for every disaggregated area of public spending. The table shows that Asignación Universal por Hijo, Programa Familias and Moratoria Previsional (and hospitals, among in-kind transfers) are the programs most targeted to reducing extreme poverty. Meanwhile, superior education and indirect subsidies concentrate their benefits more heavily on the non-poor (that is, those who exceed the $4 PPP per day line).

VI.3. Incidence Analysis

Incidence analysis has been calculated through the ratio of benefits to market income by market income deciles. The effect of direct taxes and direct transfers leads to a reduction in inequality; the highest decile by market income ranking is the one that bears the highest proportion of direct taxes. Meanwhile, in the case of direct transfers, the effect is the inverse,

Table 4: Coverage and Distribution of Benefits and Beneficiaries by Program

	Benchmark scenario Groups:		
	y < 2.5	**2.5 < y < 4**	**y > 4**
Health-Hospitals	14,7%	15,5%	69,8%
Health-Contributory	1,0%	3,8%	95,2%
Health-Contributory - elderly -INSSJyP	2,3%	4,8%	93,0%
Education-Basic	5,6%	8,6%	85,8%
Education-Tertiary and Universitary	0,4%	1,3%	98,2%
Transportation	1,1%	2,6%	96,2%
Subsidies on bus tariffs	1,5%	3,0%	95,5%
Subsidies on train tariffs	1,0%	2,8%	96,2%
Subsidies on subway tariffs	0,0%	1,8%	98,2%
Subsidies on airplane tariffs	0,0%	0,0%	100,0%
Electricity	2,3%	3,2%	94,5%
Gas red	0,8%	1,1%	98,1%
Gas "Garrafa social"	3,5%	8,1%	88,4%
Gas total	1,1%	1,9%	97,0%
Combustibles directo	0,1%	0,2%	99,7%
Combustibles indirecto	2,0%	3,0%	95,0%
Asignaciones Familiares	2,9%	6,6%	90,5%
Asignación Universal por Hijo	16,2%	21,7%	62,1%
Plan de Inclusión Previsional y Moratoria Previsional	12,2%	22,5%	65,2%
Seguro de capacitación y empleo	4,1%	2,8%	93,1%
Programa Familias por la Inclusión Social	20,1%	36,7%	43,1%
Becas universitarias	0,0%	0,0%	100,0%
Programa jóvenes con más y mejor trabajo	3,3%	4,0%	92,7%
Seguro de desempleo	7,4%	15,6%	77,1%
Comedores escolares y comunitarios	7,2%	14,6%	78,2%
Direct Cash Transfers	10,6%	18,4%	71,0%
Total Non-contributory pensions	12,2%	22,5%	65,2%
Total Contributory Pensions	0,5%	1,2%	98,3%
Total Education Spending	4,3%	6,9%	88,8%
Total Health Spending	6,8%	8,7%	84,5%
Total CEQ Social Spending	6,4%	9,6%	84,0%
Income shares	0,3%	0,9%	98,8%
Population shares	4,1%	6,0%	89,9%

Source: Author´s calculations based on ENGHo.

Table 5: Incidence of Taxes and Transfers on Income Distribution in Percentages

Deciles	Direct Taxes	Contributions (excluding contributions to pensions)	Non-contributory Pensions	Flagship CCT	Other Direct Transfers (Targeted or Not)	All Direct Transfers	Indirect Subsidies	Indirect Taxes	Net Indirect Taxes	In-kind Education	In-kind Health	In-kind Transfers
1	-0,4	-3,1	40,1	18,6	20,4	79,1	15,1	-41,1	-26,0	76,9	94,2	171,1
2	-0,3	-5,5	5,4	6,8	9,1	21,3	9,3	-28,4	-19,2	40,2	46,6	86,7
3	-0,3	-9,0	3,4	2,7	4,4	10,5	7,5	-24,1	-16,5	25,4	25,0	50,4
4	-0,2	-11,8	2,9	1,0	2,9	6,8	7,8	-23,0	-15,3	18,3	16,7	35,0
5	-0,3	-12,3	1,8	0,7	2,3	4,8	6,5	-22,1	-15,7	14,4	13,0	27,4
6	-0,2	-13,6	2,0	0,1	1,8	3,9	6,5	-21,8	-15,3	11,0	9,8	20,8
7	-0,2	-15,2	0,9	0,1	1,0	2,0	5,3	-21,0	-15,7	8,5	6,7	15,2
8	-0,4	-15,9	0,6	0,0	0,7	1,3	7,2	-19,9	-12,6	6,5	4,4	11,0
9	-1,9	-17,0	0,3	0,0	0,3	0,7	4,5	-18,9	-14,4	4,1	2,7	6,8
10	-10,9	-19,6	0,2	0,0	0,2	0,3	3,0	-15,0	-12,0	2,2	0,9	3,2
Total Population	-4,4	-16,1	1,4	0,6	1,3	3,4	5,2	-19,1	-14,0	8,5	7,5	16,0

Source: Author´s calculations based on ENGHo.

since the lowest market income deciles receive the highest proportion of transfers.

Indirect taxes show that the lowest market income deciles pay a higher proportion of their market income in taxes; this effect is partially mitigated by the indirect subsidies. In-kind transfers (health and education) fall heavily on the lowest market income deciles (Table 5).

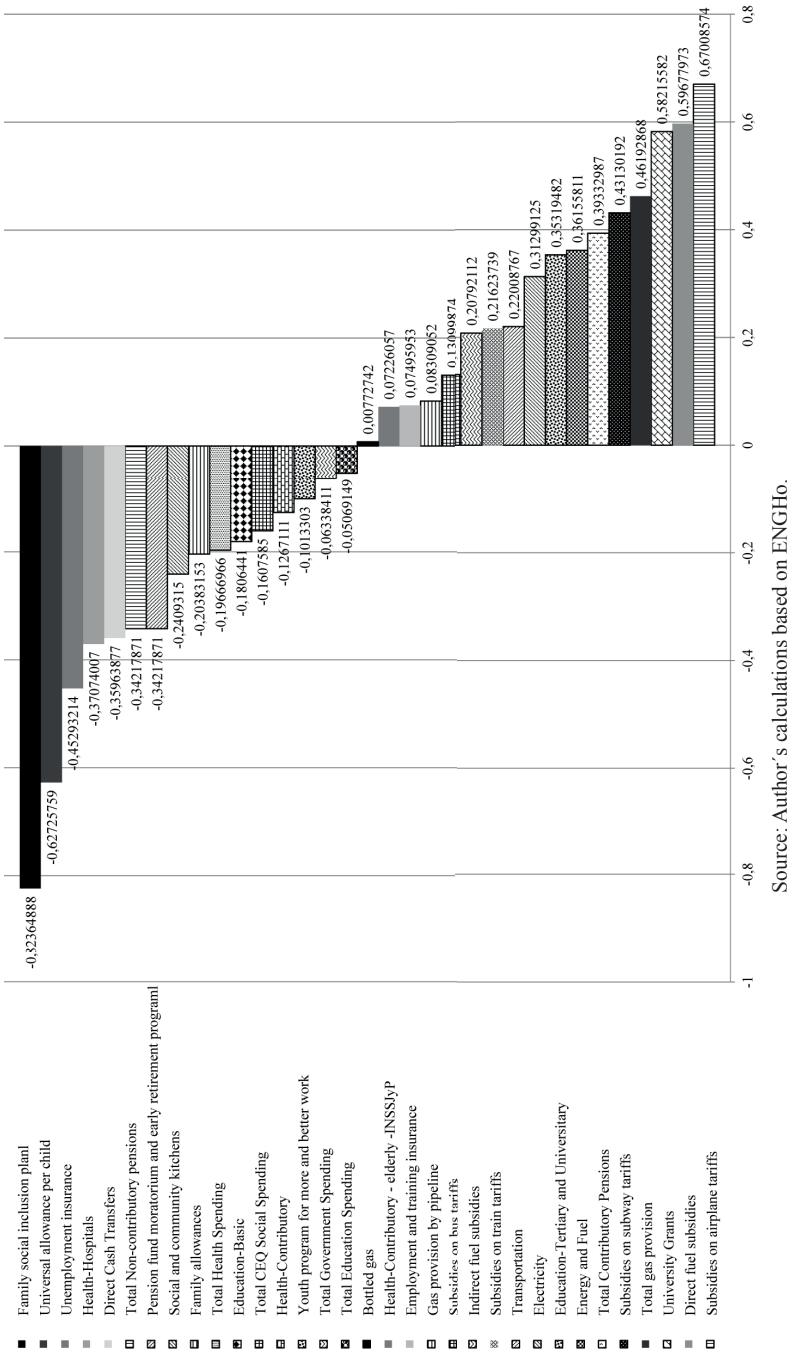
VI.4. Progressivity

Figure 4 presents social spending by program analyzed, total social spending, and indirect expenditures, sorted by their degree of progressivity, measured by the concentration coefficient.

The idea here is to show how concentrated are the benefits among the beneficiaries, based on the initial ranking of individuals. It is computationally equivalent to a Gini coefficient but without reranking of individuals (it is also called "Quasi-Gini"). Consequently, their results should be compared with initial Gini coefficient in order to determine whether expenditures are progressive in absolute, relative terms, or regressive. Those expenditures that show a negative concentration coefficient are progressive in absolute terms (pro-poor), while those with a positive sign are progressive in relative terms but not in absolute terms (pro-rich). The concentration coefficient for social spending shows progressivity in absolute terms (a pro-poor characteristic).

Most direct cash transfers, education expenditures, and health benefits are progressive in absolute terms; it is worth noting that spending in tertiary and university education is pro-rich as it benefits more, in absolute terms, households that are wealthier than those that are poorer. This result coincides with other studies (Gómez Sabaini, Harriague, and Rossignolo, 2013). However, expenditures that are regressive in absolute terms (pro-rich) are dominated by indirect subsidies, i.e., public transfers designed to keep tariffs low. Transportation, electricity and gas are among these expenditures, because richer households receive a higher benefit in absolute terms than low income individuals do (Figure 4).

Figure 4: Concentration Coefficient by Spending Category



Source: Author´s calculations based on ENGHo.

Income distribution by decile is presented in Table 6. For instance, the first decile concentrates 1.2% of market income. After government intervention, the first decile concentrates 3.9% of final income. The richest decile concentrates 35.7% of market income; taxes and public expenditures reduce its share to 27.3% of final income.

Table 6: Income distribution by Decile

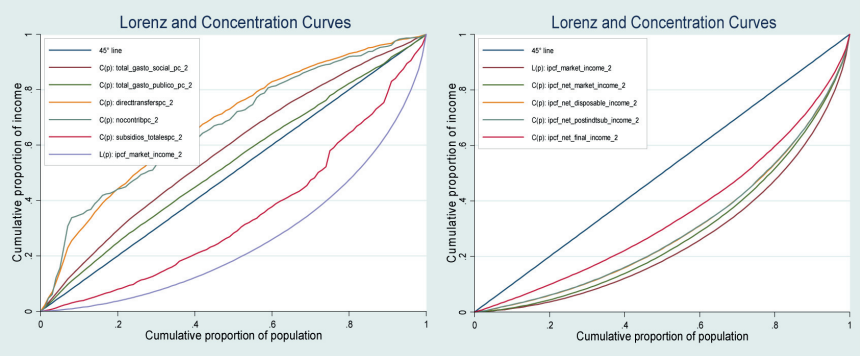
Decile	Benchmark case				
	Market Income	**Net Market Income**	**Disposable Income**	**Consumable Income**	**Final Income**
1	1,2%	1,5%	2,1%	2,1%	3,9%
2	2,4%	2,8%	3,4%	3,3%	5,0%
3	3,6%	4,0%	4,4%	4,4%	5,8%
4	4,8%	5,3%	5,5%	5,5%	6,5%
5	6,2%	6,7%	6,9%	6,7%	7,4%
6	7,6%	8,2%	8,2%	8,0%	8,4%
7	9,4%	10,0%	9,9%	9,7%	9,6%
8	12,1%	12,6%	12,4%	12,2%	11,5%
9	17,0%	17,0%	16,5%	16,2%	14,7%
10	35,7%	31,9%	30,8%	31,9%	27,3%

Source: Author´s calculations based on ENGHo.

Figure 5 presents Lorenz and concentration curves for aggregate public expenditures and market income and also these curves for every income concept that express the redistribution through taxes and public expenditures. Social expenditures, direct transfers and non-contributory expenditures are progressive in absolute and relative terms, while indirect subsidies benefit the rich in absolute terms. Lorenz curve corresponding to final income lies above that of market income, showing that public intervention improves income distribution.

Figure 5: Lorenz and Concentration Curves

(a)Aggregate Public Expenditures **(b) Redistributional Effect**



Source: Author´s calculations based on ENGHo.

VI.5 Poverty

Table 7 shows the results on poverty. The picture is roughly similar than that of inequality; most impoverished households benefit strongly from direct and in-kind transfers (health and education); the richest receive a greatly reduced proportion of these benefits. the impact on lowest deciles is much higher when considering pensions as a public transfer.

As an analogous to the income distribution analysis by decile, Table 8 presents the distribution by socioeconomic group based on poverty analysis. For instance, 0.9% of income concentrated by population lies between $2.50 and $4 per day before public policies. After direct taxes, this proportion rises to 1.4%; direct transfers reduces this proportion to 0.8% and indirect taxes and transfers increases the share to 1.6%.

The greater proportion of income concentrated by population lies in the fifth bracket (10 to 50), meanwhile fiscal system reduces the population below poverty lines, even in the highest bracket. Consequently, 30.9% of income concentrated by population was over $50 PPP when considering market income, while when considering consumable income that percentage reduces to 13% in the consumable income. This feature reflects the redistributional impact of public policies, because the richest two brackets reduce their share while the remaining four increase the amount of income

Table 7: Incidence of Taxes and Transfers on Poverty in Percentages

Deciles	Direct Taxes	Contributions (excluding contributions to pensions)	Non-contributory Pensions	Flagship CCT	Other Direct Transfers (Targeted or Not)	All Direct Transfers	Indirect Subsidies	Indirect Taxes	Net Indirect Taxes	In-kind Education	In-kind Health	In-kind Transfers
y < 1.25	-0,9	-1,1	60,8	98,9	86,5	246,2	36,6	-81,3	-44,7	321,3	437,1	758,3
1.25 < = y < 2.50	-0,4	-1,6	57,4	24,4	20,8	102,6	18,5	-47,3	-28,8	98,3	136,5	234,8
2.50 <= y < 4.00	-0,3	-3,5	33,7	13,9	17,9	65,5	13,3	-37,7	-24,4	61,9	69,1	131,0
4.00 <= y < 10.00	-0,3	-8,3	4,1	3,5	5,6	13,2	8,1	-25,3	-17,2	28,3	29,6	57,9
10.00 <= y < 50.00	-1,2	-15,5	0,9	0,2	1,0	2,1	5,9	-20,2	-14,3	7,8	6,2	13,9
50.00 <= y	-11,7	-19,8	0,1	0,0	0,2	0,3	2,6	-14,6	-12,0	2,1	0,8	2,9
Total Population	-4,4	-16,1	1,4	0,6	1,3	3,4	5,2	-19,1	-14,0	8,5	7,5	16,0

Source: Author´s calculations based on ENGHo.

they concentrate. However, these features are slightly reversed when looking at the final income distribution, because although the lowest brackets increase their share as well as the highest bracket, at the expense of the middle income brackets.

Table 8: Poverty distribution by Socioeconomic Group

Group	Benchmark case				
	Market Income	**Net Market Income**	**Disposable Income**	**Consumable Income**	**Final income**
y < 1.25	0,03%	0,05%	0,02%	0,03%	0,35%
1.25 < = y < 2.50	0,27%	0,36%	0,13%	0,27%	1,05%
2.50 <= y < 4.00	0,95%	1,36%	0,80%	1,61%	2,47%
4.00 <= y < 10.00	8,12%	12,22%	12,46%	17,91%	11,94%
10.00 <= y < 50.00	59,77%	69,24%	70,11%	67,15%	57,23%
50.00 <= y	30,87%	16,77%	16,47%	13,03%	26,96%
Total	100,00%	100,00%	100,00%	100,00%	100,00%

Source: Author´s calculations based on ENGHo.

VI.6. Fiscal mobility

Tables 9 to 11 expose the fiscal mobility matrices, which have been presented with the same disaggregation as the tables presented previously. These tables display mobility through different income groups; that is: extreme poverty (y<$1.25); moderate poverty ($1.25<=y<$2.50 and $2.50<=y<4) ; middle class ($4<=y<$10 and $10<=y<$50); and high incomes ($50<=y). The rows display the initial income (100% horizontally) and the columns mean income that accrue to poverty brackets after taxes and transfers.

Considering the impact of direct taxes and transfers, around 27% of population under extreme poverty in the market income group remain in that condition in the disposable income classification. That means that around 73% can get out of that condition after direct taxes and transfers and are between $1.25 and $10 PPP when considering disposable income; 41,6% remain in the second bracket ($1.25 to $2.50) and 17% climb to the third bracket.

Table 9: Fiscal Mobility Matrices - Market to Disposable Income

	Disposable Income groups						
Market Income groups	y < 1.25	1.25 <= y < 2.50	2.50 <= y < 4.00	4.00 <= y < 10.00	10.00 <= y < 50.00	50.00 <= y	Percent of Population
y < 1.25	27,4%	41,7%	17,1%	13,9%	0,0%	0,0%	1,2%
1.25 <= y < 2.50	0,1%	24,4%	48,4%	25,1%	2,0%	0,0%	2,9%
2.50 <= y < 4.00	0,0%	0,3%	37,5%	51,2%	11,0%	0,0%	6,0%
4.00 <= y < 10.00	0,0%	0,0%	1,0%	91,1%	7,9%	0,0%	24,5%
10.00 <= y < 50.00	0,0%	0,0%	0,0%	8,1%	91,8%	0,1%	57,5%
50.00 <= y	0,0%	0,0%	0,0%	0,0%	51,2%	48,8%	7,9%

Source: Author´s calculations based on ENGHo.

Table 10: Fiscal Mobility Matrices - Market to Consumable Income

	Consumable Income groups						
Market Income groups	y < 1.25	1.25 <= y < 2.50	2.50 <= y < 4.00	4.00 <= y < 10.00	10.00 <= y < 50.00	50.00 <= y	Percent of Population
y < 1.25	38,2%	38,1%	19,6%	4,2%	0,0%	0,0%	1,2%
1.25 <= y < 2.50	2,4%	40,4%	32,9%	23,5%	0,8%	0,0%	2,9%
2.50 <= y < 4.00	0,0%	6,1%	53,6%	34,9%	5,4%	0,0%	6,0%
4.00 <= y < 10.00	0,0%	0,0%	10,4%	86,0%	3,6%	0,0%	24,5%
10.00 <= y < 50.00	0,0%	0,0%	0,0%	23,7%	76,1%	0,2%	57,5%
50.00 <= y	0,0%	0,0%	0,0%	0,0%	70,5%	29,5%	7,9%

Source: Author´s calculations based on ENGHo.

Table 11: Fiscal Mobility Matrices - Market to Final Income

	Final Income groups						
Market Income groups	y < 1.25	1.25 <= y < 2.50	2.50 <= y < 4.00	4.00 <= y < 10.00	10.00 <= y < 50.00	50.00 <= y	Percent of Population
y < 1.25	0,0%	0,0%	13,1%	80,5%	6,4%	0,0%	1,2%
1.25 <= y < 2.50	0,0%	0,0%	1,8%	84,2%	14,0%	0,0%	2,9%
2.50 <= y < 4.00	0,0%	0,0%	0,6%	72,4%	27,0%	0,0%	6,0%
4.00 <= y < 10.00	0,0%	0,0%	0,0%	53,4%	46,6%	0,0%	24,5%
10.00 <= y < 50.00	0,0%	0,0%	0,0%	3,5%	96,2%	0,3%	57,5%
50.00 <= y	0,0%	0,0%	0,0%	0,0%	66,1%	33,9%	7,9%

Source: Author´s calculations based on ENGHo.

When comparing market to consumable income, 38.1% of population are below $1.25 PPP, which means an increase from disposable income through the effect of indirect taxes and transfers because they pay indirect taxes to a higher extent that the indirect subsidies they receive, meanwhile 19.6% remain in the $2.50-$4 bracket.

When analyzing market income and final income groups, about 80% of population that were below extreme poverty threshold considering market income are between $4 to $10 PPP when considering final income due to the effect of in-kind taxes and transfers. As can be seen, when considering the highest bracket, due to the redistributional feature of taxes and transfers, only 34% of population that started with an income that was higher than $50 stays in the same poverty bracket, while the remaining 66% lies in the $10-$50 bracket.

VII. Policy simulations

Along the last decade, Argentina has been carrying out expansionary fiscal policies whose main effect has been the reduction in existing inequality levels regarding market incomes. Among these policies, Sistema Integrado Previsional Argentino y Movilidad Jubilatoria (SIPA), a periodical increase in pensions defined by law, and "pension moratorium" (an anticipated retirement program combined with a moratorium for those who would have not fulfilled the mandatory 30 years of contributions to the pension system have been implemented. Additionally, the creation of a universal program, Asignación Universal por Hijo (AUH), extended the benefits that formal workers receive based on the amount of dependants to the ones that work in the informal sector and to the unemployed people.

On the tax side, the increase in the participation of Personal Income Tax, mainly due to the lack of adjustment in thresholds and brackets related to inflation; Corporate Income Tax, due to the lack of adjustment in corporations´ balance sheets; the introduction of Export Duties, with the aim of capturing windfall gains arising from the increase in international commodity prices, and the renationalization of the pension system have been the factors that have allowed to finance, especially in the first part of the decade, the aforementioned expansionary policies. In the second half of the decade, however, inflation tax has significantly substituted that revenue from taxes.

Public expenditure has risen to around 45% of GDP in 2014 considering the national and provincial governments, while tax burden has rides to around 32% of GDP in 2014, one of the highest historical levels. This implies that fiscal deficit has increased to unprecedented levels in recent history (2.5% of GDP in 2014 at the national level, while for 2015 the most conservative estimations place it in the surroundings of around twice as high). Additionally, GDP growth has stagnated (-2.6% in 2014; statistics for 2015 considered a 2.3% growth).

Table 2 showed that the impact of public policies regarding the reduction in disparities has been significant. However, several issues should be considered. On the expenditure side, although the incorporation of a higher portion of monetary transfers has produced an important change the composition of expenditures, economic subsidies have increased, from 2.2% in 2003 to 6.4% of PBI in 2014 and have generated important differences with production costs, which do not comply with efficiency criteria and originated distortions in relative prices.

Not only economic subsidies have constituted a significant explanation of fiscal deficit, but also they have not fulfilled the aims for which they had been introduced, according to the authorities, because energy production has stagnated (see Rossignolo, 2016).

The aforementioned distortion in relative prices has generated in family budgets a reassignment in the composition of expenditures, given the fact that low tariffs have allowed the increase in consumption of these goods (electricity, gas, transportation, etc.) . If it were assumed, for instance, that the prices of the other demanded goods were near marginal costs, while energy and transportation have tariffs that are far lower than marginal costs, this impulses its excessive and inefficient use when compared with its optimal level.

But additionally, these subsidies convey inclusion errors when covering sectors that do not need them. Expenditure in these sectors, although progressive, is quantitatively more concentrated in highest income sectors rather than lowest ones (poorest 20% receives around 12% of these expenditures, while the richest 20% gets around 35% of these benefits). Figure 5 showed concentration coefficients of these subsidies and, as it can be seen, positive values show that these are progressive in relative but not in absolute terms. Consequently, concerning public expenditures, the emphasis on

equity should include a reduction in subsidies, focalizing its reach within the sectors that really need them.

Starting from the previous analysis, a simulation was carried out (Simulation I) in a partial equilibrium context, that consisted in maintaining the subsidies for the tariff brackets of lowest electricity consumption, whereas for gas, subsidies were cut in half. In both cases, subsidies were focalized in the beneficiaries of AUH, as an example of a targeting mechanism ("social tariffs"). Total subsidies (electricity, gas and airfare tickets) were reduced in 66%.

The result of this simulation determines that these subsidies turn to be more progressive; starting from a concentration coefficient of 0.3130 in the benchmark case, focalization turns these expenditures into progressive in absolute terms, with a coefficient of -0.5053. Inequality reduces, given the fact that Gini from Final Income is lower that of the benchmark case (Tables 2 and 12), meanwhile poverty increases slightly regarding the strong relative weight of the reduction in the amount of subsidies (1.9% of GDP).

Table 12: Gini and Headcount Index for Different Income Concepts Simulation I

Group	Benchmark case				
	Market Income	**Net Market Income**	**Disposable Income**	**Consumable Income**	**Final income**
Gini	0,481	0,435	0,403	0,391	0,293
Headcount index					
$2.5 PPP	4,7%	5,1%	1,8%	3,3%	
$4 PPP	12,3%	13,9%	7,3%	13,3%	
National Moderate PL (INDEC)	10,9%	12,5%	3,6%	6,6%	
Other Moderate PL (FIEL)	29,0%	33,3%	24,9%	36,3%	

Source: Author´s calculations based on ENGHo.

Given the fact that poverty increases slightly, it interesting to analyze income mobility. Table 13 shows income mobility matrix, which was built by comparing proportions of population that, through the action of public sector by means of paying taxes and receiving the benefits of public expenditures, go up in poverty brackets. this table shows the difference (%) between population percentages in each bracket for the benchmark case and the case with the removal of subsidies.

The table should be read horizontally, For instance, considering the richest population bracket according to market income, the reduction in subsidies makes 1.8% of that population fall into the less rich category. Taking into account the poorest bracket, around 1.5% of population that had been able to climb up to the second and third bracket now fall again to the first one.[15]

Table 13: Fiscal Mobility Matrices
Differences in % between the benchmark case and the case with reform in subsidies

	Consumable Income groups					
Market Income groups	**y < 1.25**	**1.25 <= y < 2.50**	**2.50 <= y < 4.00**	**4.00 <= y < 10.00**	**10.00 <= y < 50.00**	**50.00 <= y**
y < 1.25	1,06%	-0,51%	-1,01%	0,11%	0,31%	0,04%
1.25 <= y < 2.50	0,34%	1,60%	-2,80%	0,37%	0,49%	0,00%
2.50 <= y < 4.00	0,00%	0,78%	1,28%	-2,32%	0,11%	0,15%
4.00 <= y < 10.00	0,00%	0,00%	1,33%	-1,91%	0,31%	0,27%
10.00 <= y < 50.00	0,00%	0,00%	0,00%	1,69%	-1,63%	-0,03%
50.00 <= y	0,00%	0,00%	0,00%	0,00%	1,81%	-1,81%

Source: Author´s calculations based on ENGHo.

Could there be a compensatory policy? There are many ways of protecting affected sectors with monetary transfers, reduction in VAT, social tariffs, etc. Use of monetary emission has caused inflation to stabilize around 30 to 35% annually with the consequent effect in poverty levels. Inflation moderates the effect of the said transfers in terms of their impact on poverty and inequality, and also in its macroeconomic expansionary effect in consumption.

On the tax side, VAT generates the highest revenue (around 7% GDP) although its effects on income distribution are well known: as it affects more importantly those who spend a higher proportion of their incomes on consumption, its affects regressively income distribution.

Consequently, the aim is to perform public policies that would reduce fiscal deficit without affecting, or if possible improving income distribution

15. But as it can also be noted, focalization of subsidies can also reduce inequality and increase the proportion of lowest income people that stay in the same poverty levels.

while reducing poverty considering a partial equilibrium context. Strengthening of monetary transfers appears as essential, meanwhile, regarding taxes, a reduction or elimination of VAT in the basic food basket restricting its scope to the beneficiaries of monetary transfers would diminish its regressive feature.

Two additional simulations were produced. The second simulation (Simulation II) consisted in increasing monetary transfers, in particular, AUH was increased in 100% compared to 2012 values and its scope was expanded in order to include Monotributo taxpayers (originally excluded by law), which entails a fiscal cost of 0.7% of GDP. Results are shown in Table 14. It can be seen that poverty reduces strongly considering Consumable Income, and its reduction is higher than the benchmark case.[16]

Table 14: Gini and Headcount Index for Different Income Concepts Simulation II

	Market Income	Net Market Income	Disposable Income	Consumable Income	Final income
Gini	0,483	0,438	0,393	0,391	0,295
Headcount index					
$2.5 PPP	5,5%	5,8%	1,0%	1,8%	
$4 PPP	13,1%	14,7%	4,8%	9,4%	
National Moderate PL (INDEC)	10,9%	12,5%	3,6%	6,6%	
Other Moderate PL (FIEL)	29,0%	33,3%	24,9%	36,3%	

Source: Author´s calculations based on ENGHo.

The third alternative consisted in eliminating VAT from the components of the basic food basket (discriminating by product) for the beneficiaries of AUH. Results are shown in Table 15. Focalization of VAT makes this tax to be more concentrated (concentration coefficient increases from 0.3147 to 0.3260), and consequently less regressive, with a fiscal cost of around 0.1% of GDP; this alternative reduces poverty measured in terms of consumable income compared with the benchmark case (Table 2).

Consequently, although the results are slightly different, these alternatives could be effective in reducing poverty and inequality. Figure 6 compares the results in terms of inequality and poverty variation ($2.5 PPP).

16. Poverty and inequality are higher than the initial case because when building different income concepts, and due to the existing information in the household survey, private transfers get reduced when public transfers increase.

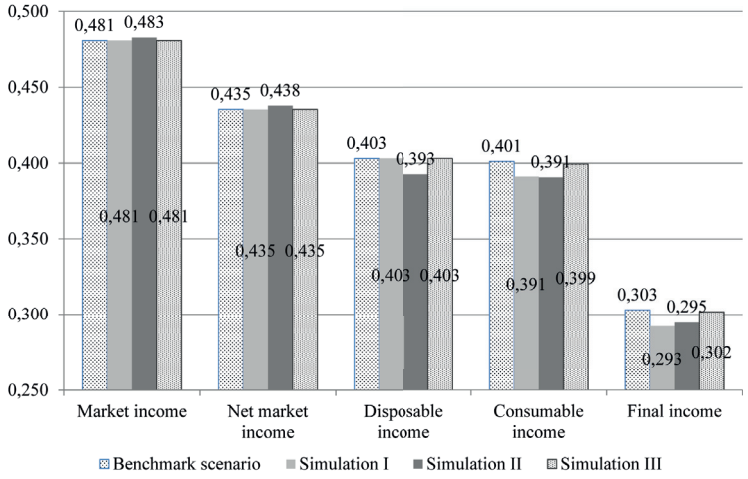
Table 15: Gini and Headcount Index for Different Income Concepts Simulation III

	Ingreso de mercado	Ingreso neto de mercado	Ingreso disponible	Ingreso consumible	Ingreso final
Gini	0,481	0,435	0,403	0,399	0,302
Headcount index					
$2.5 PPP	4,7%	5,1%	1,8%	3,0%	
$4 PPP	12,3%	13,9%	7,3%	11,9%	
National Moderate PL (INDEC)	10,3%	12,0%	5,6%	9,4%	
Other Moderate PL (FIEL)	28,8%	33,1%	28,4%	37,5%	

Source: Author´s calculations based on ENGHo.

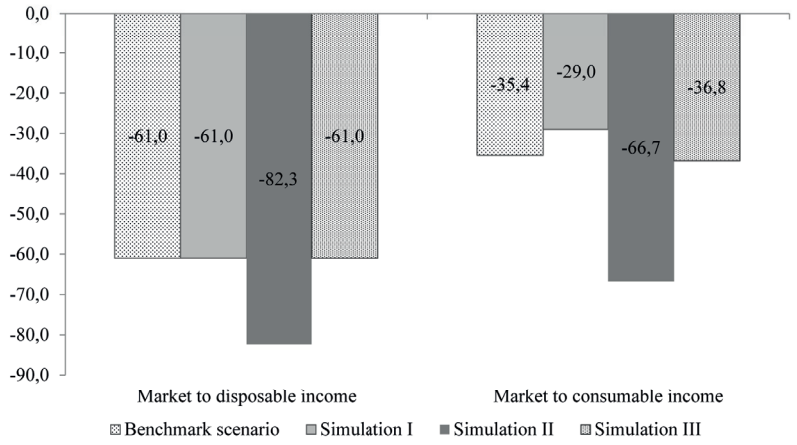
The highest poverty reduction is generated with the increase and expansion of AUH, while reduction in VAT reduces poverty more than focalization of subsidies. Regarding inequality, the reduced budgetary impact of VAT reduction reduces its impact in inequality decrease, but Gini coefficient is however lower than the initial case. Therefore, considering the three impacts together, both inequality and poverty could get reduced, even with a reduction in fiscal deficit.

Figure 6a: Changes in inequality and poverty under different alternatives Gini coefficient



Source: Author´s calculations based on ENGHo.

Figure 6b: Changes in inequality and poverty under different alternatives U$S2.5 PPP Poverty change (%)



Source: Author´s calculations based on ENGHo.

VIII. Conclusions

After the crisis in 2001, which generated an increase in poverty indicators and inequality, the government in Argentina instituted a series of policies intended to ameliorate inequality and reduce poverty. Among the policies introduced from 2002 to 2003 (Programa Jefes y Jefas de Hogar)and expanded from 2008 to 2009, programs such as Asignación Universal por Hijo and Moratoria Previsional have been the most effective. Additionally, in order to help expand aggregate demand, indirect (economic) subsidies were introduced to keep tariffs on electricity and transportation low for greater Buenos Aires residents.

On the tax side, an increase in revenues from direct taxes (income tax, social security contributions) through expansions in tax bases accompanied the nominal increase of traditional indirect tax revenues.

This study has introduced the CEQ methodology to analyze the impact of public expenditures and taxes on income distribution and poverty in Argentina using ENGHo survey data from 2012-2013. In this paper pensions have been considered as a part of market income. The results show a high degree of correction in welfare indicators: market inequality is strongly re-

duced and poverty is highly ameliorated. However, due to indirect subsidies and programs like Asignaciones Familiares, there is still a high spillover effect when targeting the poor.

Additionally, the increase in the public deficit raises the question of whether this level of public expenditure can be sustained, given the fact that tax revenues have already reached a historic peak. A reduction in spending, without greatly altering the impact on inequality and poverty, should necessarily consider diminishing economic subsidies.

A reduction in subsidies imply an increase in tariffs that would generate a reassignment in families expenditures, that should now derive more resources to these goods and adjusting consumption of other goods. Consequently, general equilibrium effects should be taken into account, Increase in tariffs, reflected in prices, imply reduction in real wages affecting aggregate demand and increase in poverty. But also a reduction in production would be generated, given the fact that costs for companies are also increased. The timing for the measures is essential, because compensating policies should have immediate effect in familiar expenditures in order to sustain aggregate demand and reduce increases in poverty and inequality.

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Core labour standards, Bilateral and Multilateral Trade

Estándares laborales mínimos, comercio bilateral y multilateral

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Abstract

Core labour standards defined by the ILO in 1998 are universal but applied very differently across countries. Compliance is much higher in high income countries. However, the causality between improved labour standards and economic growth remains a controversial issue. Export-led growth strategies might encourage developing countries to curb the process of standards improvement. In this way, they can raise the volume of their unskilled labour endowments (child and/or forced labour) in order to strengthen their comparative advantage over compliant countries. We use a gravity model to assess the trade impact of the level of compliance with core labour standards, distinguishing the effects on bilateral trade (geographical specialization) from the multilateral effects. We show that countries that meet the labour standards tend to trade more with each other, while non-compliant countries tend to trade more with compliant countries. These effects are identified mainly with respect to child labour and freedom of association. Countries that meet labour standards tend to be less open, but differently depending on the standards, with a non-linear relationship for some of them. Less compliant countries may simultaneously step up their trade and labour standards. For median countries, mainly the emerging countries, the level of compliance with labour standards is "optimal".

Keywords: Exports, International Trade, Labour Standards, ILO, Gravity Models.

JEL codes: F13, F14, F16, F53, F6, J8.

RESUMEN

Los estándares laborales mínimos definidos por la OIT en 1998 son universales pero se aplican de manera muy diferente en los distintos países. El cumplimiento es mucho más alto en los países de altos ingresos. Sin embargo, la causalidad entre la mejora de las normas laborales y el crecimiento económico sigue siendo un tema controvertido. Las estrategias de crecimiento dirigidas por las exportaciones pueden alentar a los países en desarrollo a frenar el proceso de mejora de las normas. De esta forma, pueden aumentar el volumen de sus dotaciones de mano de obra no calificada (trabajo infantil y / o forzado) a fin de fortalecer su ventaja comparativa sobre los países que cumplen con los requisitos. Utilizamos un modelo de gravedad para evaluar el impacto comercial del nivel de cumplimiento de las normas laborales fundamentales, distinguiendo los efectos sobre el comercio bilateral (especialización geográfica) de los efectos multilaterales. Mostramos que los países que cumplen con las normas laborales tienden a comerciar más entre sí, mientras que los países que no cumplen tienden a comerciar más con los países que cumplen con los requisitos. Estos efectos se identifican principalmente con respecto al trabajo infantil y la libertad de asociación. Los países que cumplen con los estándares laborales tienden a ser menos abiertos, pero de manera diferente dependiendo de los estándares, con una relación no lineal para algunos de ellos. Los países menos dóciles pueden al mismo tiempo intensificar sus normas comerciales y laborales. Para los países medianos, principalmente los países emergentes, el nivel de cumplimiento de las normas laborales es "óptimo".

Palabras clave: Exportaciones, comercio internacional, normas laborales, OIT, modelos de gravedad.

Códigos JEL: F13, F14, F16, F53, F6, J8.

I. INTRODUCTION

The ILO Declaration on Fundamental Principles and Rights (1998) defines four core standards, embodied in eight conventions. These rights are universal and apply to all member countries, regardless of the level of economic development. This Declaration was inspired by the World Summit for Social Development in Copenhagen (1995), which included seven agreements. Since little protection against child labour was included in the

ILO conventions, a new convention was added to cover its worst forms (Convention 182). The four core labour standards, embodied in eight conventions, are:

- Freedom of association and the right to collective bargaining (Conventions 87 and 98);
- Elimination of all forms of forced or compulsory labour (Conventions 29 and 105);
- Elimination of discrimination in respect of employment and occupation (Conventions 100 and 111);
- Recommended minimum age for child workers (Convention 138) and the elimination of the worst forms of child labour (Convention 182).

There is a consensus about the positive correlation between the quality of labour standards and the level of development. Income per inhabitant is reportedly one of the drivers of compliance with core labour standards (Casella, 1996; Busse, 2004; Arestoff and Granger, 2003). Bazillier (2008) and Bonnal (2010a) confirm the positive impact of core labour standards on long-run growth à la Solow (1956). However, the direction of causality and the transmission channels are still being discussed.

Following Solow (1956), endogenous growth models emphasize the positive role of accumulating production factors, especially human factors (Lucas 1988; Romer, 1989). Child labour and poor health and safety conditions also combine to drive down the rate of human capital accumulation and, consequently, future growth rates. Likewise, the different forms of labour standards violation aim to or effectively do cut wages to below their equilibrium rate (marginal labour productivity). However, this distortion provides little incentive to the employer to invest in more capitalist processes of production, which burden productivity and keep growth rates down. Aidt and Tzannatos (2002) believe that upholding workers' rights facilitates coordination and raises productivity by reducing the effects of labour/management conflict on production and helping small open economies to adjust more rapidly to economic shocks, and this at the lowest possible cost. Martin and Maskus (2001) show that, in competitive markets, freedom of association should improve productivity. The freedom of association and collective bargaining are also often preferred to the introduction of a minimum wage, which can crowd out low productivity adult workers from the

labour market and instead encourage the use of informal child labour (Basu, 2000; Dinopoulos and Zhao, 2007).

Trade openness must be included in the chain of causality. Some authors locate trade openness at the beginning of the process (Griswold, 2001): the best way to improve labour standards would be to encourage growth assumed as being stimulated by open trade. In this case, we speak of "endogenous" labour standards development: opening trade encourages growth and income, which in turn helps to reduce poverty, raise real wages and improve compliance with labour standards. Any measure that reduces international trade would therefore be counter-productive[1].

Some studies explore the consequences of trade openness on labour standards. For example, Edmonds and Pavcnik (2002) show that the gradual relaxation of the rice export quota increased the relative price of this product and therefore the income of the rural population, reducing child labour in rural areas. Adversely, the increase in the rice price for consumers led to a deterioration in the situation in urban areas. Busse (2004) posits that opening up trade significantly reduces discrimination against women and child labour. Yet the impact of trade liberalization on forced labour and union rights is more ambiguous. However, Arestoff and Granger (2003) show that opening up trade has a negligible effect on the composite indicator for compliance with the ILO's four core labour standards. Edmonds and Pavcnik (2006) find a negative relationship from trade to child labour, which becomes statistically insignificant when cross-country income differences are controlled (see also Neumayer and de Soya, 2005).

One of the most discussed issues is the temptation, for some countries that have rallied to export-led growth strategies, to slow down this endogenous process, and even to regress in terms of labour standards compliance, to reinforce their competitive advantage in an unfair “race to the bottom” process. The “lose-lose” game mainly concerns South-South trade in that countries in the South are rivals competing for similar sectors on the international markets (Elliott, 2003). The risk here is of deteriorated terms of trade if enough countries simultaneously raise their supply. This concern is shared by trade unions and anti-globalist movements, but also by

1. See also the review of literature by Brown et al. (2011).

international organizations such as the ILO and the OECD[2], which keep a close eye on labour practices in export processing zones. Unfortunately, save some case studies, little comparative research has been conducted on this topic. The question is at the heart of the debate on the inclusion of a "social clause" in trade agreements. Under pressure mainly from developing countries, which denounced the protectionism of such a clause, the 1996 WTO Singapore Ministerial Conference denied any link between labour and trade[3]. This assertion must be checked. A non-significant relation would confirm it. A positive contribution of high labour standards to exports would open a window for rapid improvement in the less compliant countries. A positive relationship between core labour standard non-compliance and exports would not be enough to prove the existence of unfair labour practices, but it would make plausible the capacity to contain labour standards to boost exports.

The aim of this paper is to provide empirical elements in answer to the question: is the foreign trade of a country influenced by the level of its compliance with core labour standards?

In the first section, we review the theory and past empirical evidence on this relation between labour rights and trade. Section 2 presents the econometric strategy based on gravity models. Section 3 explains how the data have been collected. Section 5 delivers some evidence and we conclude in section 6.

II. Theoretical issues and previous empirical evidence

Many studies are based on the usual HOS theory, which presents the effects of labour standards on trade (Brown et al., 1996; Buss, 2004). If non-compliance with labour standards raises a country's relative unskilled labour endowment, then that country's comparative advantage in labour-intensive goods will be strengthened and we can expect more trade with capital- (or skilled labour) abundant countries. However, an increase in exports of low-skilled labour-intensive goods might prompt a downturn in the terms of trade (see, for example, Brown et al., 1996).

2. For example, EC-ILO (2011) and OECD (1996, 2000, 2007)

3. Simultaneously, an increasing number of free trade agreements include social clauses under different forms but with a frequent reference to ILO's core labour standards. See Siroën (2013), International Labour Office (2013), Kamata (2014), Agustí-Panareda et al. (2014).

We can reasonably consider that non-compliance with certain core labour standards, such as child labour and forced labour, increases a country's relative low-skilled labour endowment. With the assumption of perfect substitutability, the effect of factor endowment should be known. However, we can also consider a substitution effect of one labour category for another. If child labour and adult labour are totally interchangeable, the use of child labour may entail the exclusion of a proportion of the adult labour force from the market (Basu and Van, 1998; Hansson, 1981; Granger, 2003). Similarly, forced labour might be used alternatively to free labour. Lastly, if some categories of unskilled workers (adults, women) are replaced by other unskilled workers, such as children, the net effect on factor endowment is undetermined by the theory.

Moreover, the positive, if not ambiguous, effect of child and forced labour on unskilled labour endowments might also be counterbalanced by the violation of other labour standards. Although discrimination prevents certain categories of the population from having access to the labour market (Becker 1971), it affects the quantity of labour used in production and the availability of unskilled workers. However, discrimination is also a facility for hiring segregated people in the informal economy with poorer labour conditions. Secondly, discrimination creates rigidity and affects productivity, thus preventing a more efficient allocation of resources and trade performances (Brownet al., 1996; Maskus, 1997; OECD, 1996).

The role played by freedom of association and collective bargaining rights is a highly challenged aspect, mainly because of "closed shop" unions, widely thought of as negative, in some Latin American countries (Elliott, 2003). Nonetheless, the unions' legitimacy usually lies in the challenge they present to the excessive and abusive powers of employers, which are often inadequately regulated by the public authorities and advantaged by other core standard violations, such as forced labour and child labour. The monopsonic behaviour of the employer leads to the labour being underpaid (Granger, 2003; Martin and Maskus, 2001; Morici and Shulz, 2001; Shelburne, 2004). The firms that have a monopsonic recruitment advantage can ration out their labour demand, and, therefore, production and exports, to put pressure on the price of labour. Consequently, not all available unskilled workers will be hired, reducing the country's low-skilled labour endowment.

The consequences of the level of compliance with core labour standards on factor endowment are ambiguous and, consequently, so are the expectations of their influence on trade. Because the theory is ambiguous, only empirical studies might settle the issue. Early studies show the absence of a correlation between labour standards and the volume of trade (OECD, 1996, 2000; Mah, 1997; Raynauld and Vidal, 1998), but they do not use reliable indicators. The number of ILO conventions ratified by a country is the most frequently used indicator in empirical studies (Rodrik, 1998; Busse, 2003; Cooke and Noble, 1998). Yet the deviation between convention content and actual application is such that this indicator should be considered with caution (Chau and Kanbur, 2001; Bonnal 2010, a, b).

Van Beers (1998) finds that labour standards influence trade in 18 OECD countries. Rodrik (1998) and Dehejia and Sammy (2004) show that timework and child labour contribute to a higher share of labour-intensive exports in total exports. In the same way, Kucera and Sarna (2006) find that Freedom of association and the right to collective bargaining have no significant effects on total manufacturing exports, weaker rights in a country promote labour-intensive exports.

Granger (2005) builds her own indicators for the four core labour standards and concludes that violation by Southern countries tends to raise the volume of North-South trade. These studies confirm the existence of a trade-labour linkage.

Many empirical and econometric studies focus on the specific case of freedom of association and collective bargaining. They show that collective bargaining improves overall economic competitiveness (see, for example, Aidt and Tzannatos, 2002; Martin and Maskus, 2001). Bonnal (2010b), using the rate of work injuries and the rate of strikes and lockouts, find that better labour standards and institutions increase trade. Nonetheless, the estimates by Galli and Kucera (2004) fail to reveal any definite connection between upholding union rights and exports of labour-intensive goods.

So far, the question has been tackled from a unilateral point of view: do countries respecting core labour standards trade more with the world? Trade relations concern instead country pairs and are influenced by bilateral trade costs such as tariffs, transport and insurance costs. Moreover, labour

standards might influence these bilateral trade costs for many reasons. For example, preferential agreements may include provisions on labour standards. Bagwell and Staiger (1998) posit that two countries respecting labour standards should conclude more reciprocal tariff reductions, which imply lower trade costs. Limão (2005) analyses the linkage trade policy - non-trade social policy on international cooperation and demonstrates that the policy linkage might be sustainable when both policies issues are "strategic complement." Our empirical study sets out to check whether labour standards affect bilateral trade relations as well as the total trade of countries.

III. METHODOLOGY

The factor endowment theory hypothesis is that countries violating labour standards should increase their relative endowment in unskilled labour trade compared with compliant countries. Furthermore, these non-compliant countries should be more competitive and trade more under the "social dumping" hypothesis than compliant countries (other things being equal), although a "lose-lose" game could cancel out the expected export value advantage.

A good framework is Anderson and van Wincoop's specification of the gravity model. Gravity models predict bilateral trade by the product of national incomes (GDP) and the distance between partners. Distance is a proxy for transport costs and the model may be "augmented" by other variables affecting bilateral trade costs. Model isolates "dyadic" (indexed ij) and idiosyncratic (indexed i or j) effects (Feenstra, 2004). The model proposed by Anderson and van Wincoop (2003) introduces export and import country fixed effects, which are usually used to quantify "multilateral resistance" by considering unobserved variables. In a cross-section model, fixed effects also include usual and observable "idiosyncratic" variable (indexed i or j), including GDPs. The equation to estimate is then:

$$\text{Log}\,(X_{ij}) = \alpha_1 \text{Log}(D_{ij}) + \sum_k \alpha_k \Psi_{ijk} + \sum_{k'} \beta_k Z_{ijl} + \sum_i \alpha_i DE_i + \sum_j \alpha_j DI_j + \varepsilon_{ij} \quad (1)$$

D_{ij} = distance between i and j; Ψ_{ijk} = a matrix of k-vectors for mutual characteristics (language, border, trade agreement, factor endowment, etc.).
Z_{ijl} = the l bilateral variables designed to measure the level of compliance with core labour standards; DE_i (DI_j) = exporter (importer) fixed effects (dummy variable); ε_{ij} = error term.

However, the choice of variables of interest as regards to mutual compliance with labour standards by both partners raises a further issue for the cross-section estimates: unilateral variables such as income (*GDP*) and national labour standards level are perfectly collinear with country (exporter and importer) fixed effects. In (1), since all unilateral characteristics are controlled by fixed effects, we can work solely with bilateral (dyadic) variables, including variables covering heterogeneous relative factor endowments and labour standards compliance between each country pair, which influence bilateral trade in an HOS framework. Given that developed countries are also skilled-labour abundant and usually compliant with labour standards, we must control for factor endowment heterogeneity to be sure of correctly isolating the effect of labour standards compliance differences.

In a second step, the effect of labour standards on overall trade is estimated by estimating the fixed effect variables on country-specific variables, including indicators of compliance with each type of labour standard.

Another econometric issue directly concerns the empirical methods used to estimate gravity equations. There is a long tradition of log-linearizing (1) and estimating the variables of interest by OLS. However, Santos Silva and Tenreyro (2006) show that heteroskedasticity is frequently underestimated by gravity models, even when a Huber-White estimator is used. Elasticities can then be highly misleading. To bypass these problems, Santos Silva and Tenreyro (2006) advocate testing trade variables in levels, i.e. testing X_{ij} instead of Log (X_{ij}), and using a robust Poisson Pseudo-Maximum Likelihood (PPML) estimator since it produces estimates robust to heteroskedasticity (Winkelmann, 2003). This equally superior method deals with zero trade flows that are lost in log transformation. Santos Silva and Tenreyro (2011) confirm that the PPML estimator performs well even when the proportion of zeroes is very large. However, PPML cannot distinguish the countries whose characteristics give them zero trade probability from those with positive trade potential that are simply not trading. This gives rise to the over dispersion problem in the model. The zero-inflated Poisson (ZIP) regression that we use specifies first a logistic equation in order to determine whether trade probability is zero or not. The common argument that ZIP models have the drawback of not being invariant to the scale of the dependent variable is not relevant if we use the same scale for PPML and ZIP.

IV. DATA

We use an "augmented" version of the basic gravity model, considering different trade cost components. The information on bilateral exports comes from the International Monetary Fund (Direction of Trade Statistics). GDP data are taken from the World Bank's World Development Indicators. Distance ($dist_{ij}$) is the great arc circle kilometric distance between the two capitals of countries *i* and *j* (CEPII database). Contiguity ($contig_{ij}$) and colonial ties are also taken from CEPII's Distance database. The common language data come from the CIA World Factbook. Dummies indicating common membership of a preferential trade agreement ($agreement_{ij}$) are from the WTO database.

We have a problem with the usual variables of common language and common colonial link. First, defining the common language is sometimes hit or miss in multilingual countries. Second, there is an obvious link between language and colonizer. So we use a new variable called "cultural distance" ($culdist_{ij}$), which takes the value 1 when two countries share the same language (at least one language deemed official by the CIA database) and/or had a colonizer-colonized link.

Since we believe the contribution of labour standards to labour endowments to be a transmission channel, we need to control for relative factor endowment. Taking account the number of countries we consider, it is very challenging to get homogeneous data on relative factor endowments. We then use per capita GDP as a proxy for the unknown stock of capital or skilled labour, considering that this variable is positively correlated with the abundance of capital and skilled labour in the economy. In our HOS framework, we compare this proxy with the partner's: the higher the value, the higher the bilateral trade. So $factorend_{ij}$ compares *MaxGDPpercapita*, the GDP per capita of the "richest" country -*i* or *j*- to *MinGDPpercapita*, the GDP per capita of the other country (*j* if the country is "poorer" than *i*, *i* otherwise):

$$factorend_{ij} = MaxGDPpercapita \,/\, MinGDP\ per\ capita.$$

Few databases include compliance with labour standards as defined by the ILO declaration. Some cover the legislation without factoring in enforcement. Others focus on different labour aspects (minimum wage, for

example)[4] or merely certain standards as ratified ILO conventions, child or female labour. Papers have previously used Granger's database (Granger, 2003, 2005; Granger and Siroën, 2010), which gives each separate core labour standard (child labour, forced labour, discrimination and union rights) a score from 1 (total non-compliance) to 4 (total compliance). The coding method is based on the use of a large amount of qualitative and quantitative information from various sources, such as the ILO, the US Department of Labor, the US Department of State and NGO reports.

However, Granger's database ranks only 65 countries. This restriction is due to the priority of keeping sources as diversified as possible. Bazillier (2008) prefers to expand the sample to 155 countries, even though this means reducing the number of sources used for scoring. He uses a similar method of scoring for the same period (end of the 1990s). From different sources of information, the index scores the four core labour standards + the number of ratified ILO conventions from 1 (total compliance) to 5 (total non-compliance). He uses the MCA (Multiple Correspondence Analysis) method to build an aggregated index weighting the five indexes. Bazillier finds a close correlation between his own indicator and Granger's. We systematically apply the same methods to the same countries and verify that they give similar results in the following estimations even though the parameter values are quite different. However, the introduction of a fifth ILO convention ratification indicator alongside the four core labour standards is highly debatable, not only due to the change of subject, but also because the number of ratifications is a misleading indicator of compliance with labour standards. For example, the USA has ratified just 14 conventions (only two of the eight "core" ILO conventions) while Myanmar has ratified 19. The Bazillier index has been rebuilt. We take the same weighting method (MCA) previously used by Bazillier. However, we exclude convention ratifications. Our index varies from 0 (worst compliance) to 1 (full compliance).

We use this aggregated index (*Agindex*) to proxy the "social distance" ($socdist_{ij}$) between *i* and *j* in the equation:

$socdist_{ij} = 1 + \left| Agindex_i - Agindex_j \right|$ (1 is added to avoid the null value for equally scored countries). So, this indicator can range from 1 (perfect similarity between both countries) to 2 (total dissimilarity).

4. See, OECD (1996), Rodrik (1998), Mah 1997, Van Beers (1998).

However, the social distance index only gauges social heterogeneity irrespective of labour practices. A pair of countries violating labour standards (0 in both countries) will have the same $socdist_{ij}$ value as a couple of compliant countries (1 in both countries). Although this choice is in line with the tested hypothesis that heterogeneity in relative factor endowment creates trade, we must also consider the hypothesis that the impact on trade is affected by compliance with labour rights. Two similarly compliant countries might trade differently than two non-compliant countries. Intra-industrial trade for differentiated goods, which is greater in compliant countries, is a consequence of factor endowment similarity, not of factor endowment heterogeneity. Unlike as previously, we then introduce two dummy variables: $respect_{ij}$ taking the value 1 when both countries comply with labour standards (if $Agindex>0.75$ in i and j) and $norespect_{ij}$ when they do not ($Agindex \leq 0.75$). The arbitrary threshold of 0.75 seems reasonable relatively to the distribution of the scores in the sample. Small variations of this threshold do not significantly affect the results. The reference is then the case in which one country complies and not the other. The hypothesis regarding the trade impact of factor endowments suggests a negative sign for the two variables. However, in view of intra-industrial trade between similar countries, i.e. non-HOS trade, something different would be found for countries that comply with the labour standards.

V. EVIDENCE

We first consider the bilateral trade effect of compliance with labour standards, e.g. the factor endowment effect. From (1), we estimate bilateral exports with the usual variables of geographic distance ($dist_{ij}$), common border ($contig_{ij}$), trade agreement ($agreement_{ij}$), cultural distance ($culdist_{ij}$), economic distance ($factorend_{ij}$) and our variables of interest. We use two methods of estimation: PPML (including nil values) and ZIP (filtering nil values).

We first (table 1, columns 1 and 2) test the social distance indicator ($socdist_{ij}$), which is never significant. The factor endowment indicator ($factorend_{ij}$) is significantly positive in the other two estimations: countries with greater factor endowment differences trade more (significantly at the 5% level).

The absence of a social distance effect on trade might be due to the fact that the factor endowment hypothesis comes into play differently when

both countries comply with labour standards compared with when both violate them. We then introduce $respect_{ij}$ and $norespect_{ij}$, which are defined above. The full satisfaction of the factor endowment hypothesis would imply two negative signs because the reference is the heterogeneous case (one complies, the other not), which is assumed to increase differences in relative factor endowment as is a pro-trade effect. The two methods of estimation produce similar positive results. Columns 1 (PPML) and 2 (ZIP) show that the factor endowments hypothesis does not hold ($respect_{ij}$ positive) for compliant countries: a pair of countries both with high labour standards will trade more with each other than with countries with low labour standards. Conversely, violating countries export more to compliant countries ($norespect_{ij}$ negative). Although these results considerably weaken the factor endowment hypothesis, they lend currency to the social dumping hypothesis.

In the theoretical part of the paper, we pointed up that although child labour and forced labour are expected to increase the endowment in unskilled labour, standards have ambiguous effects on trade for two main reasons: substitution effects (for example, child labour might reduce the demand for adults and tone down the expected increasing effect) and the nature of the

Table 1: Effects of labour standards compliance on bilateral exports

	(1) PPML	(2) ZIP	(3) PPML	(4) ZIP
Variables	x_{ij}	x_{ij}	x_{ij}	x_{ij}
$contig_{ij}$	0.579***	0.575***	0.574***	0.569***
$distcult_{ij}$	0.130*	0.128*	0.135*	0.132*
$ln(dist_{ij})$	-0.630***	-0.632***	-0.629***	-0.631***
$agreement_{ij}$	0.535***	0.528***	0.542***	0.536***
$ln(factorend_{ij})$	0.050**	0.044**	0.043**	0.036*
$socdist_{ij}$	0.054	0.046		
$respect_{ij}$			1.036*	1.010*
$norespect_{ij}$			-1.144**	-1.117**
Constant	4.881***	4.960***	6.069***	6.115***
Wald Chi^2		110798		109237
Observations	17465	17465	17465	17465
Country fixed-effects	yes	yes	yes	yes

Robust standard errors in parentheses; ***: 1%; **: 5%; ***: 10%

Table 2: Effects of each labour standard on bilateral exports (ZIP)

	(1) Social distance	(2) Both respect	(3) Both no respect
Child Labour (CL_{ij})	0.035	2.323***	-2.216**
Forced Labour (FL_{ij})	0.016	0.415	-0.551
Discrimination (Dis_{ij})	0.038**	1.789***	-1.985***
Freedom of Association (FA_{ij})	-0.033	1.070*	-1.062*

Robust standard errors in parentheses; ***: 1%; **: 5%; ***: 10%

violation (for example, restrictive monopsonistic demand for labour in the absence of trade unions affecting the low-skilled labour endowment).

Table 2 gives the coefficient of the previous variables of interest (the other coefficients are hardly affected), which are disaggregated at the level of each labour standard. We use the index for each labour standard (child labour, forced labour, discrimination, freedom of association), ranked from 1 (the best) to 5 (the worst). Social distance is again the difference in partner countries' *agindex* levels, like the computation method for $socdist_{ij}$ in table 1. The social distance index for these new values ranges from 1 (full similarity) to 5 (total dissimilarity). In columns 2 and 3, a country is considered compliant with a labour standard if the index is 1 or 2, and non-compliant for values of 3 to 5. Results are given for ZIP estimations only.

Social distance is only significant for discrimination. The coefficient of the respect-no respect dummies is consistent with the results found at the aggregated level (table 1, column 4). Two labour standards, child labour and discrimination, are highly significant, which is not the case for forced labour. Freedom of association is not very significant at all, even with the same signs. If countries violating labour standards tend to export more than compliant countries, this is mainly due to child labour and discrimination at work and, less clearly, to freedom of association.

Social distance takes the value 1 (same index), 2, 3, 4 or 5. An alternative to quantifying the influence of social distance is to introduce four dummy variables for each score, except 1, which is the reference (very close countries). Table 3 shows the results for the variable of interest only. It con-

Table 3: Effects of bilateral differences between labour standards on bilateral exports (ZIP)

Social distance	Child Labour	Forced Labour	Discrimination	Freedom of association
1	Ref.	Ref	Ref	Ref
2	0.148**	0.030	-0.093	0.043
3	0.088	-0.183**	0.042	-0.102
4	-0.250**	0.110	0.079	0.019
5	-0.772***	0.174	0.121	-0.240

Robust standard errors in parentheses; ***: 1%; **: 5%; ***: 10%

firms that social distance has little effect on trade but turns up an interesting result for child labour. Child labour differences act positively up to 3, but are increasingly negative for higher differences. We also note that discrimination is no longer significant.

We can conclude that the effect of social distance on trade depends on the level of compliance with core labour standards. Proximity fosters trade in the presence of "good" labour practices and deters it in the presence of poor practices. The countries that violate the core labour standards can expect to foster their trade only with compliant countries. This differentiation explains why a measure of social distance that does not make this distinction, like our social distance indicator, finds opposite effects and is then not able to produce a significant result.

The estimations have hitherto concerned bilateral exports only. However, they give no clear information about each country's overall volume of trade with the world. Anderson and van Wincoop (2003) believe that exporter and importer fixed effects are good proxies for "multilateral resistance", under which bilateral trade is not only influenced by "dyadic" variables affecting the couple, but also by idiosyncratic variables specific to a country, but affecting all bilateral relations. Baldwin and Taglioni (2006) consider that fixed effects reduce the risk of endogeneity. They include all omitted variables with an idiosyncratic dimension.

In a second step, we regress exporter and importer fixed effects derived from the previous gravity model in models which introduce idiosyncratic variables. We then use an OLS estimation.

Concerning the estimation of fixed effects, the main issue is to choose the "preferred" gravity estimator used at the first step. We opt for ZIP as the surest estimation method. Given that social distance ($socdist_{ij}$) is never significant, we exclude it from the equation (table 1, column 2) and continue through to the equation estimated in table 1, column 4. Theoretically, fixed effects are purged from the bilateral effects of labour standards. However, the index is built from the combination of unilateral variables, which might influence the fixed effects, which would not then reflect the entire influence of compliance with labour standards on trade with the world as a whole. We then extract fixed effects from a new gravity ZIP equation that does not include bilateral indexes of labour standards (results are not introduced in the paper).

We introduce some idiosyncratic variables: GDP_i, population (pop_i) and remoteness (landlocked countries: $landlock_i$). Usually, population is barely significant, but we prefer to keep it in order to control also for economic development, usually proxied by per capita GDP_i.

A variable contributing to higher fixed effects (lower multilateral resistance) is a pro-trade variable. If low labour standards help raise exports, then the hypothesis of "social dumping" as an instrument of a successful mercantilist "export-led growth" strategy may be deemed relevant. Import expectations are not so clear because social dumping might also be an instrument to protect the country from imports. However, mercantilism also implies facilitation for imported goods intended for processing, which is typically the case with export processing zones, frequently criticized for their labour behaviour.

The variable of interest is the aggregated index at country level ($Agindex_i$). The index ranges from 0 (no compliance) to 1 (full compliance). We also test a non-linear relation.

The regression using fixed effects extracted from a gravity model without bilateral labour standards only gives significant results in the non-linear relation with importer fixed effects: more compliance with labour standards raises imports up to a threshold of 0.65 for the index.

When fixed effects are purged from mutual compliance with labour standards, the results are more significant for both linear and non-linear

Table 4: Impact of compliance with labour standards on trade (fixed effects) (aggregated index)

Fixed effects extracted from	Without bilateral labour standards				With bilateral labour standards Table 1, column 4			
Fixed effects	**Export**	**Export**	**Import**	**Import**	**Export**	**Export**	**Import**	**Import**
Ln(GDPi)	0.977***	0.986***	0.852***	0.868***	0.932***	0.966***	0.807***	0.848***
Ln(popi)	-0.101	-0.110	-0.111***	-0.128***	-0.046	-0.08	-0.057	-0.098**
Landlocki	-0.264	-0.265	-0.466***	-0.469***	-0.280	-0.286	-0.483***	-0.490***
Agindexi	-0.248	1.026	0.293	2.517***	-1.703***	2.898**	-1.171***	4.398***
Agindexi2		-1.112		-1.942***		-4.02***		-4.863***
Constant	-20.67***	-21.03***	-17.31***	-17.95***	-19.98***	-21.282	-16.62***	-18.20***
Observations			137		137		137	137
R^2	0.87	0.87	0.95	0.95	0.83	0.85	0.91	0.94

Robust standard errors in parentheses; ***: 1%; **: 5%; ***: 10%

specifications. Improvements in labour standards tend to reduce imports and exports. More specifically, in keeping with the non-linear relation, improvements raise exports and imports only up to the low index of 0.36 and 0.45 respectively.

Once again, we must deepen the analysis taking into account the different influence of each standard. Then, we regress the fixed effects on each labour standard from 1 (total compliance) to 5 (total non-compliance), firstly assuming a linear relation and secondly assuming a non-linear (parabolic) relation. A positive (negative) sign means that more non-compliance (compliance) fosters trade. Results are highly contrasted.

In both the linear and non-linear model estimates, the more robust relation with trade is observed for the forced labour variable. The more forced labour a country uses, the more this country exports and imports. If we consider the non-linear relation, the effect is inversed (lower standards = lower trade) on the index (1 to 5), maximizing trade at the level of 3.38 for exports and 3.60 for imports. Among the countries with a score of 4, we find Indonesia, Kenya, Morocco (and many Mediterranean countries), Malaysia, Russia, Singapore, etc., which have a very small margin to simultaneously improve both trade and labour standards.

With respect to freedom of association, the evidence is different for export and import fixed effects. Concerning exports, the linear relation behaves well with a positive, significant sign (lower standards-higher exports) while the non-linear relation does not work. The linear relation is also significant for imports, but the non-linear regression greatly improves the quality of the test (F, R^2) with once again a U-inversed relation at the threshold of 3.88.

The relation between trade and child labour is clearly of a U-inversed type with a maximum threshold of 2.92 and 2.94 respectively; among countries at the "quasi-maximum" of 3 – Bolivia, China, India, Morocco, Brazil, Vietnam, i.e. the emerging countries – this means that a different level of standards, higher as well as lower, would contract trade.

Only the linear specification gives significant results for discrimination with a positive relation: more discrimination-more trade.

The evidence shows that less compliant countries, frequently the poorest ones, may simultaneously raise trade and labour standards. For median countries, mainly the emerging countries, the level of compliance with labour standards is "optimal" from a mercantilist point of view and an improvement in labour standards might affect trade. For the most compliant countries, the developed ones, their high respect of labour standards implies a trade shortfall.

Table 5: Impact on trade of compliance with each labour standard (fixed effects)

	Export fixed effect		**Import fixed effect**	
Child Labour (CL)	0.031	0.922***	0.040	0.953***
Child Labour (CL^2)		-0.158***		-0.162***
Forced Labour (FL)	0.177***	0.994***	0.144***	0.626***
Forced Labour (FL^2)		-0.147***		-0.087**
Discrimination (Dis)	0.094*	-0.152	0.120***	0.249
Discrimination (Dis^2)		0.040		-0.021
Freedom of Association (FA)	0.310***	0.582**	0.144***	0.675***
Freedom of Association (FA^2)		-0.045		-0.087***

Robust standard errors in parentheses; ***: 1%; **: 5%; ***: 10%

VI. Conclusion

Labour standards and trade are not disconnected.

There is significant support for the factor endowment hypothesis when we consider non-compliant countries, which are more oriented towards trade with compliant countries than with closer countries. However, we do not find any evidence for the opposite case: compliant countries prefer trading with similar countries in terms of worker rights.

We also find some evidence in favour of the mercantilist hypothesis, i.e. non-compliance with labour standards as a trade policy instrument used to stimulate exports and contain imports. However, for child and forced labour, the relation is non-linear. Increased compliance with labour standards raises international trade up to a threshold, around that where many

emerging countries are situated, and reduces it above. Clearly, developed countries that adopt high standards will trade relatively less, all things remaining constant in terms of size (GDP and population), development level and geographic characteristics.

This evidence cannot be interpreted as being conducive to a containment of national labour standards at a medium level or an argument for lowering them in developed countries. The sustainability of export-led growth without an improvement in labour standards is highly questionable. If trade can drive growth, non-compliance with core labour standards can also curb a development process led by the more sustainable improvement in human capital. The political and social sustainability of such a mercantilist policy is another issue, as shown by the recent strikes in the Chinese Free Trade Zone.

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Inserción laboral de los graduados de la UNdeC: efectos sobre los salarios del *mismatch* en educación y calificaciones*

Job placement of UNdeC graduates: the effects on income of the mismatches in education and qualifications

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Resumen

Se analizan los efectos que los mistmatches en educación y calificaciones tienen sobre la remuneración de los graduados de la Universidad Nacional de Chilecito. Se ajustan regresiones a través de los modelos Probit Ordenado y Regresión por Intervalos. Ambos estimadores ofrecen resultados similares: mayores niveles de matching en calificaciones aumentan la probabilidad de pertenecer a intervalos de ingreso superiores; mientras que el mismatch educativo reduce tal probabilidad, aunque la estimación no es estadísticamente significativa. Ser hombre y tener padres con estudios universitarios también está positivamente correlacionado con una mayor probabilidad de percibir mayores ingresos.

Palabras clave: mismatch; educación; calificaciones; salarios; UNdeC.

Códigos JEL: I26 ; J31.

Abstract

In this paper we look at the effects that the mismatches in education and qualifications have on the income of graduates of the Universidad Nacional de Chilecito (UNdeC). We estimate alternative specifications using Ordered Probit and Interval Regression models. Both estimators offer similar re-

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sults: higher levels of matching in qualifications increase the probability of belonging to higher income intervals; while educational mismatch reduces such probability, although the latter are not statistically significant. Being male and having parents with university education are also positively correlated with a higher likelihood of having higher income.

Keywords: mismatch, education, skills, wages, UNdeC.

Códigos JEL: I26 ; J31.

I. INTRODUCCIÓN

Existe una amplia literatura que intenta explicar el fenómeno por el cual los individuos son asignados en puestos de trabajos para los cuales poseen niveles de educación y calificación distintos a los requeridos, y como se asocia este *mismatch* al nivel de ingresos. En particular, este trabajo se enfoca en dos desajustes entre el sistema de educación superior y el mercado de trabajo: Sobre-educación y Sobre-calificación. Se pretende analizar cómo los distintos grados de *matching* en términos de educación y calificación afectan a los salarios de los graduados de la Universidad Nacional de Chilecito (UNdeC).

Reconociendo la inexistencia de estudios que aborden esta temática para el caso de los egresados de la UNdeC y considerando, además, que la misma es la principal proveedora de mano de obra calificada de la región, la importancia de este trabajo radica en dar a conocer la posible presencia de sobre-educación y sobre-calificación en dicho grupo, y los posibles efectos de ambos fenómenos sobre los salarios. Este estudio realiza un aporte importante que contribuye a conocer la calidad de la inserción laboral de los titulados, lo que resulta pertinente tanto para los graduados como para la propia institución en función del diseño de acciones futuras que contribuyan al conocimiento de la inserción en el mercado de trabajo.

En función de los hallazgos teóricos y empíricos que presenta la literatura, se pretende verificar la hipótesis que mayores grados de *match*, tanto educativo como en términos de calificación, están asociados a mayores salarios. Además, se plantean hipótesis secundarias respecto al efecto esperado de las variables de control sobre los ingresos.

El análisis se lleva a cabo mediante la estimación de una Ecuación de Mincer extendida, la cual busca explicar la tasa salarial como función de características de los individuos, y controlar por la influencia de los posibles *mismatches* en términos de educación y calificaciones. En primer lugar, se ajusta una regresión a través del modelo Probit Ordenado (PO), el cual se adapta a la naturaleza ordinal de la variable dependiente. En segundo lugar, con el propósito de corroborar la robustez de los resultados se trabaja con el modelo de Regresión por Intervalos (RI).

Entre los resultados obtenidos se observa que las variables Edad, Educación de los padres, Formalidad laboral y Horas trabajadas, tienen un efecto positivo sobre los ingresos de los graduados. En relación al comportamiento de las variables de interés se obtiene que mayores niveles de *matching* para las variables Correspondencia (entre calificaciones adquiridas y requeridas) e Incumbencia (entre la ocupación y la formación de grado) disminuyen la probabilidad de ubicarse en los intervalos de ingresos más bajos y aumentan la probabilidad de pertenecer a aquellos más altos. Respecto a los desajustes educativos, los coeficientes sugieren que el *mismatch* educativo reduce la probabilidad de pertenecer a intervalos superiores de ingresos, mientras que aumentan la probabilidad de ubicarse en intervalos más bajos, aunque estos resultados son no significativos. Finalmente, el ejercicio de robustez, en general, apoya los resultados obtenidos cuando se utiliza el estimador PO.

Más allá de ciertas limitaciones técnicas del análisis realizado, como la construcción de medidas de desajustes de carácter subjetivo, en función de la opinión del graduado, y no de carácter objetivo, es importante considerar que este trabajo representa un aporte para la UNdeC y el medio en el que está inserta, no sólo en función de la generación de información hasta ahora inexistente, sino que también a nivel nacional se observa que no existe una cultura extendida dirigida a realizar un seguimiento de los graduados universitarios.[1]

1. Una experiencia reciente es el sistema SIU-Kolla establecido por la Secretaría de Políticas Universitarias en conjunto con el Sistema Universitario Nacional Público. El Sistema SIU-Kolla es una herramienta que permite realizar encuestas on-line a graduados, con el objetivo de obtener información sobre su inserción profesional, su relación con la universidad, el interés por otros estudios, etc. Hasta el momento, su implementación es bastante heterogénea entre las Universidades Nacionales.

El trabajo se organiza de la siguiente manera: la sección II explica el marco teórico con los antecedentes internacionales de la temática. La sección III describe los datos utilizados. La sección IV resume los diferentes modelos y técnicas de estimación, que luego se aplican en el análisis empírico cuyos resultados se presentan y discuten en la sección V. Por último, la sección VI contiene las conclusiones del estudio.

II. MARCO TEÓRICO

Dentro del marco de la Economía de la Educación y en relación al mercado laboral, existe un amplio cuerpo de literatura que examina la incidencia y efectos del *mismatch* entre las características de un individuo y aquellas requeridas por el puesto de trabajo; en particular dos aspectos han atraído a una importante parte de la literatura, la sobre-educación y la sobre-calificación, y su influencia sobre los salarios.

McGuinness (2006) define la sobre-educación como el fenómeno que se observa cuando un individuo posee un nivel educativo superior al requerido por su empleo. En cambio, la sobre-calificación, según la definen Sánchez y McGuinness (2011), implica un desajuste entre las calificaciones y/o habilidades relacionadas a la educación formal e informal o a la habilidad innata, con los requerimientos de calificaciones del puesto de trabajo. Ambos fenómenos, señala McGuinness (2006), reflejan un desajuste en el mercado de trabajo y son costosos para la economía, ya que a nivel macroeconómico el bienestar nacional es menor de lo que sería en el caso que las habilidades de los individuos fuesen utilizadas correctamente, además de los potenciales efectos negativos sobre el individuo, tanto en términos de sus ingresos como de su realización personal.

Desde el punto de vista de la Teoría del Capital Humano, los salarios siempre igualan al producto marginal del trabajador, que a su vez está determinado por el nivel de capital humano acumulado, ya sea como educación formal o como entrenamiento en el trabajo. De acuerdo a esta teoría, los ingresos no son afectados por los requerimientos de un trabajo en particular. En cambio, el Modelo de Competencia Laboral sugiere que las características del trabajo son las que determinan los ingresos (McGuinness, 2006). En base a estas dos teorías, Bauer (2002) analiza los efectos del desajuste educacional sobre los salarios para el caso de Alemania. Mediante la aplicación

de técnicas de datos de panel estima dos modelos. En el primero, siguiendo a Verdugo y Verdugo (1989), la tasa salarial es explicada por los años de educación alcanzados; añadiendo dos variables dummies para reflejar si el individuo es sobre-educado o si es sub-educado, y por un conjunto de variables de control. Bajo esta especificación, los individuos con desajuste educacional se comparan con individuos con el mismo nivel de educación, siendo en este último caso el requerido por el trabajo. En la segunda especificación, y siguiendo a Duncan y Hoffman (1981), se descompone al nivel educativo, medido en años, entre los años de educación adecuada, de exceso o de déficit. En este caso, la comparación tiene lugar entre trabajadores con desajustes educativos y aquellos con la misma ocupación pero con la educación adecuada. Entre los hallazgos para la primera especificación se destaca que los hombres sobre-educados ganan un 10,6% menos que aquellos con igual nivel educativo pero que no son calificados como sobre-educados, y este porcentaje aumenta al 15,1% en el caso de las mujeres. En función del segundo modelo, se obtiene que el retorno de los años de educación requerida es mayor al retorno de los años de educación alcanzados.

Otro marco teórico que sirve para el análisis son los Modelos de Asignación. Según McGuinness (2006) estos modelos subrayan que la elección del puesto o sector crea un paso intermedio entre las características de los individuos y sus ingresos. La maximización de la renta guía a los trabajadores a elegir un trabajo particular sobre otros. Por lo tanto, los altos salarios de los trabajadores con ciertas características juegan un rol asignativo en la economía, en lugar de ser simplemente recompensas por la posesión de características particulares. Los trabajadores que se encuentran en un sector o puesto particular no se distribuyen aleatoriamente, sino sobre la base de las elecciones que hacen para maximizar su ingreso o utilidad. Con el fin de explicar adecuadamente los cambios en la distribución de ingresos se debe considerar tanto las características individuales como las del puesto de trabajo. Bajo este marco, la sobre-educación es totalmente consistente con la interpretación de la asignación, sugiriendo que el producto marginal y, por lo tanto, los ingresos dependerán en cierta medida tanto del individuo como del puesto de trabajo, y, además, que los requerimientos del trabajo imponen un techo a la productividad/ingresos que impide ganar un salario igual a su producto marginal.

McGuinness y Bennett (2007) estudian el caso de los graduados de Irlanda del Norte, explorando la incidencia de la sobre-educación para indi-

viduos con niveles particulares de capacidad, representados por su posición dentro de la distribución salarial de graduados. Para evaluar en qué medida el impacto de la sobre-educación varía a lo largo de la distribución salarial se estima una ecuación de ingresos, distinguiendo entre género, mediante regresiones por cuantiles. Los resultados sugieren que los hombres graduados con habilidad baja y media son clasificados como sobre-educados y sufren una penalización salarial en relación a los que no lo son. Para ambos géneros, los resultados apoyan la interpretación de la asignación del mercado de trabajo. Los autores resaltan la importancia de controlar por la heterogeneidad de habilidades no observada, con el fin de evitar exagerar los impactos salariales de este fenómeno. Por su parte, Dolton y Silles (2008), basándose en la Teoría de la Movilidad Ocupacional, la cual sugiere que si los déficits de habilidades pueden corregirse con la experiencia o la formación en el trabajo, la sobre-educación será eliminada con el tiempo, examinan los determinantes de la sobre-educación y sus impactos en los ingresos laborales para graduados del Reino Unido, por medio de dos mediciones subjetivas de sobre-educación. Por un lado, la sobre-educación se mide en función de las calificaciones requeridas para acceder al trabajo (*get*), y, por otro, en función de las calificaciones necesarias para hacerlo (*do*). De acuerdo a los resultados, el estimador de Mínimos Cuadrados Ordinarios (MCO) indica una penalización salarial asociada a la sobre-educación de 23% cuando es medida por get, y de 16% cuando es medida por do.

La mayoría de la evidencia empírica que analiza los efectos de la sobre-educación sobre el retorno al trabajo se realiza en el marco de una selección única. Por ello resulta interesante considerar el análisis de Cutillo y Di Pietro (2006), que adoptan un enfoque de doble selección, pues consideran dos decisiones básicas del individuo, la decisión de trabajar y la elección de la ocupación. Para esto, construyen un modelo que utiliza el estimador de Heckman. El Modelo de Selectividad Bivariada consiste en dos ecuaciones simultáneas, una de elección binaria para estimar la decisión de trabajar o no trabajar, y otra de resultado binario, "estar sobre educado" o "estar educado apropiadamente". Las ecuaciones estimadas analizan los factores que influyen en la decisión de trabajar o no, los determinantes de la sobre-educación, y de los ingresos para los trabajadores sobre-educados y educados apropiadamente. Respecto a los factores explicativos se consideran, al igual que en Dolton y Silles (2008), un conjunto de características personales, educativas y laborales. Además, se incluyen variables de familia

y compromisos personales como variables instrumentales, las cuales son excluidas de la ecuación de ingresos. Los principales resultados son consistentes con la evidencia en cuanto a que los trabajadores sobre-educados ganan menos que sus pares con educación adecuada. Segundo, la diferencia salarial entre sobre-educados y trabajadores educados apropiadamente es significativamente mayor cuando se utiliza el enfoque de doble selectividad que cuando se emplea el estimador de MCO. La principal causa por la cual la técnica de MCO subestima significativamente la penalización salarial asociada con la sobre-educación parece ser el sesgo introducido por la endogeneidad de la sobre-educación.

En cuanto a los estudios que buscan explicar el fenómeno de la sobre-calificación y sus efectos sobre los ingresos, Green y McIntosh (2007) parten de la explicación de la sobre-calificación que brinda la teoría del Capital Humano, de acuerdo a la cual aquellos individuos que aparentemente son sobre-calificados, realmente no lo son, porque no todos los aspectos de su capital humano son observados. El objetivo es explicar por qué algunos individuos son, o parecen estar sobre-calificados para el trabajo que realizan y, además, examinar lo que sucede con las penalizaciones y primas salariales, una vez que se controla el grado de sobre/sub-capacitación. Por medio de un modelo Probit se estiman los efectos marginales de las diversas variables explicativas sobre la probabilidad de estar sobre-calificado. Los resultados revelan que las características del trabajo están estrechamente relacionadas con estar sobre-calificado, y parecen dominar a las características de los individuos, con excepción de la variable edad, que sugiere que los trabajadores con edades medias tienen menor probabilidad de encontrarse sobre-calificados que los jóvenes y los adultos. Al examinar lo que sucede con las penalizaciones y primas salariales, una vez que se controla por el grado de sobre/sub-capacitación, los resultados revelan que la caída asociada a la sobre-calificación no es estadísticamente significativa, lo que sugiere que la razón de la penalización salarial no es que las habilidades están siendo subutilizadas, al menos en un grado significativo.

Partiendo del mismo enfoque teórico, Brynin y Longhi (2009) analizan la incidencia y el impacto en los salarios de la sobre-calificación para el caso de cuatro países europeos (Inglaterra, Alemania, Italia y Noruega). Esta investigación se basa en la Teoría del Capital Humano, que sugiere que no se espera que las personas inviertan en educación si no pueden usarla

correctamente, y en la Teoría de la Habilidad Heterogénea dentro del nivel de calificación, según la cual un déficit en educación formal puede ser equilibrado con habilidades superiores o experiencia laboral. Como en los casos anteriores, el impacto de la sobre-calificación sobre el retorno al trabajo se estima por medio de una ecuación de salarios à la Mincer modificada, donde el logaritmo del salario por hora es explicado por un vector de características individuales y un conjunto de variables dummies definidas para cualquier combinación de calificaciones reales y requeridas. Excepto para Alemania, se obtiene que un graduado con la calificación adecuada gana más que un graduado sobre-calificado. Por otro lado, excepto para el caso de Noruega, alguien con una calificación escolar superior adecuada gana más que alguien sobre-calificado con el mismo nivel educativo.

Los trabajos hasta ahora referidos analizan de manera separada la incidencia de la sobre-educación y la sobre-calificación sobre los retornos al trabajo, sin embargo ambos fenómenos pueden ser estudiados en conjunto, para hacer una comparación sobre sus respectivos impactos sobre los salarios. Allen y Van den Velden (2001) examinan la relación entre la correspondencia de educación y trabajo, y la utilización de habilidades individuales. Partiendo de la Teoría de Asignación del Mercado de Trabajo, la cual indica que el principal factor limitante de la productividad son las propias habilidades del individuo, especifican un modelo con ambos desajustes, educativos y de habilidades, para determinar el efecto neto de cada clase de desajuste luego de controlar los efectos de otros determinantes. Ambos desajustes tienen un efecto significativo sobre los salarios. Sin embargo, la mitad de los efectos de la subutilización de habilidades desaparecen cuando se tienen en cuenta los desajustes educativos. Sólo una pequeña proporción de los efectos sobre los salarios son considerados por los desajustes de habilidades, aunque presentan un efecto negativo sobre los salarios. Por otro lado, los desajustes educativos afectan fuertemente a los salarios.

En relación a los costos que implican los desajustes educativos y de habilidades, Sánchez y McGuinness (2011) enfocan su investigación en un intento de cuantificar la proporción de las penalizaciones de ingresos de los sobre-calificados que pueden atribuirse al desajuste de las competencias de habilidades individuales. El análisis econométrico, por medio de modelos de MCO y Probit, parte de una especificación básica incluyendo sólo controles para desajustes en el primero y el actual empleo, antes de adicionar los com-

ponentes principales y las variables de desajuste de habilidades individuales para permitir una evaluación de la sensibilidad de la penalidad general ante estos efectos. Luego se aplica un análisis de Componentes Principales, una técnica estadística para tomar datos de una dimensión mayor y, usando la dependencia entre variables, representar estos en un conjunto de datos de menor dimensión sin ninguna pérdida de información. Con respecto a las variables claves de desajuste se incluyen medidas de desajuste de educación y de habilidad, ambos medidos subjetivamente dentro de los datos, comparando las habilidades adquiridas con su nivel de utilización en el lugar de trabajo. En línea con los resultados de Allen y Van den Velden (2001), los resultados muestran que la penalidad salarial de la sobre-educación es mucho más sustancial que la de la sobre-calificación. Los trabajadores sobre-educados ganan un 29% menos que aquellos trabajadores con un *matching* correcto, mientras que los trabajadores sobre-calificados ganan 5.6% menos que los trabajadores que manifestaron utilizar en forma completa sus habilidades.

Los antecedentes empíricos mencionados permiten realizar una selección de las principales teorías que están en línea con el tema de estudio de la presente investigación. En resumen, para el caso de la incidencia de la sobre-educación, la Teoría del Capital Humano sugiere que el factor determinante del nivel de ingresos es el propio capital humano acumulado, ya sea como educación formal o entrenamiento en el trabajo; mientras que de acuerdo al Modelo de Competencia Laboral, el factor determinante son las características del trabajo. En una postura intermedia, los Modelos de Asignación señalan que la elección de un puesto de trabajo en base a la idea de maximización de la renta hace que los ingresos dependan no sólo de las características del individuo, sino también de las del trabajo. Por otra parte, la Teoría del Capital Humano postula que la posible presencia de sobre-calificación puede tener lugar porque no todos los aspectos del capital humano son observados.

Finalmente, cabe mencionar que para el caso de Argentina la evidencia es bastante escasa, correspondiendo a un análisis de índole básicamente descriptivo sobre diferentes características de la inserción laboral de graduados de ciertas universidades y carreras. A modo de ejemplo se puede mencionar a Espínola, et al. (2006) que realizan un estudio para graduados de Medicina, y Lockett, et al. (2000) que analizan la situación laboral de graduados de la Facultad de Odontología, ambas para el caso de la Uni-

versidad Nacional del Nordeste. También, cabe mencionarse el trabajo de la Oficina de Aseguramiento de la Calidad de la Universidad Nacional de Río Negro por medio del cual se llevó a cabo un relevamiento laboral de los primeros graduados de dicha Universidad, y el informe de la Dirección de Vinculación con el Graduado Universitario de la Universidad Nacional de La Plata que examina la trayectoria laboral y competencias profesionales de los graduados de dicha unidad académica.

II. Datos

Los datos utilizados para el análisis econométrico provienen de la encuesta realizada en el marco del proyecto FiCyT 2012 "Sobre-educación, satisfacción laboral e ingresos de los graduados de la Universidad Nacional de Chilecito".

El relevamiento se llevó a cabo a través de una encuesta que releva información sobre las características personales, académicas y laborales del individuo. Para determinar la existencia de sobre-educación y sobre-calificación en los graduados de la UNdeC, se incluyen en el cuestionario preguntas acerca de la relación entre la formación de grado adquirida en la UNdeC y el trabajo que realiza; el grado de correspondencia de las calificaciones obtenidas y las requeridas por el trabajo; los requisitos de calificación laboral necesarios para realizar el trabajo, entre otras. Tales preguntas, con respuestas categóricas, conforman medidas subjetivas de sobre-educación y sobre-calificación.

La recolección de datos se realizó en dos etapas; en la primera, se envió el formulario vía correo electrónico a las direcciones de correo de los graduados provistas por la Oficina de Bedelía de la UNdeC. Durante este primer periodo (octubre-noviembre de 2014), se obtuvieron 156 respuestas. Debido a que algunas de estas presentaron algún tipo de inconsistencia, se decidió pasar a una segunda etapa de recolección a través de entrevistas personales, con el fin de eliminar las inconsistencias y aumentar el número de respuestas. Esta segunda etapa tuvo lugar durante los meses de enero a junio de 2015, obteniéndose 77 respuestas adicionales. Si bien en un principio la intención fue encuestar al total de la población de graduados, al finalizar la etapa de relevamiento de campo se obtuvo una tasa de respuestas del 48% sobre un total de 484 individuos. Del total de personas encuestadas el 35%

corresponde al género masculino y el 65% restante al femenino.

En cuanto a la tasa de respuestas por Escuela, la Tabla 1 reporta que la Escuela de Ciencias Biológicas alcanza la mayor tasa de respuestas (80%), correspondiéndole a esta escuela el menor número de egresados (5). Por el contrario, a la Escuela de Derecho que tiene el número más alto de graduados (111), le corresponde la segunda menor tasa de respuestas (39%) después de la Escuela de Comunicación (38%). Para el resto de Escuelas se obtuvieron tasas de respuesta superiores al 40%.

Tabla 1: Totales y Tasas de respuesta por Escuela. Año 2013

Escuela	Total	Tasa de Respuesta
Ciencias Biológicas	5	80%
Economía	39	74%
TICs.	31	71%
Agronomía	33	64%
Desarrollo Local	43	51%
Educación	147	42%
Pregrado	54	41%
Derecho	111	39%
Comunicación	21	38%

Fuente: Elaboración propia en base a datos de Bedelía de la UNdeC.

IV. Marco Empírico

Con el objetivo de cuantificar los efectos de los desajustes de educación y calificación sobre los ingresos se estima una ecuación de salarios *à la* Mincer, la cual busca explicar las diferencias salariales en función de características personales del graduado (edad, género, estado civil y nivel educativo de los padres), académicas (tipo de carrera) y laborales (formalidad laboral, sector de actividad, antigüedad y horas trabajadas).

Para ello, se ajustan distintas regresiones adicionando variables que controlan por los dos fenómenos que se buscan estudiar: sobre-educación y sobre-calificación. En particular, para el caso del desajuste educativo, se trabaja con una variable que identifica tres posibles situaciones: sub-educado, correctamente educado, y sobre-educado. Esta variable se construye en función de los requerimientos del trabajo (formación profesional, técnica,

operativa, y sin formación) y la descripción de las actividades desarrolladas por los encuestados. En cuanto al desajuste en calificaciones se trabaja con tres variables, una que mide el grado de correspondencia entre las calificaciones adquiridas durante los estudios universitarios y las requeridas por el trabajo, una segunda variable controla por la relación entre la ocupación con el área de incumbencia de la formación de grado, mientras que la tercera variable busca identificar el uso que se hace en el trabajo de los conocimientos adquiridos durante los estudios universitarios. Es importante señalar que las diferentes variables han sido construidas a partir de valoraciones subjetivas de los encuestados, y no en base a criterios de carácter objetivo.[2]

Del total de la muestra se trabaja únicamente con los individuos asalariados, y debido a que una mayoría de los encuestados optaron por indicar el nivel de ingresos promedio mensual por intervalos, la variable dependiente a utilizar está categorizada en 9 intervalos de ingresos, ordenados de menor a mayor.[3]

Dada la naturaleza ordinal de la variable que se busca explicar, pero la cual tiene un ordenamiento natural, es decir mayores valores se asocian a "mejores" resultados, en un primer lugar se ajusta una regresión a través del modelo PO, que, además de ser adecuado para el caso de variables dependientes discretas, explotan la información que provee el orden o ranking que la misma posee, mientras que los valores que la misma adopta son irrelevantes. Siguiendo a Albarrán Pérez (2010), sea una variable latente:

$$y_i^* = x_i' \beta + \mu_i$$

La variable categórica se observa según y_i^* cruza secuencialmente determinados umbrales:

$$y_i = r, \qquad \text{si } \alpha_{r-1} < y_i^* \leq \alpha_r, \qquad r = 1,\ldots,m$$

donde $\alpha_0 = -\infty$ y $\alpha_m = \infty$

2. Para el caso del *mismatch* en calificaciones se utilizaron las preguntas D.2, D.4 y D.5 del Cuestionario a los Graduados de la UNdeC, mientras que para el *mismatch* en educación se utilizaron las preguntas D.6 y D.7.C. El cuestionario está disponible en la versión digital en la edición de la presente revista.

3. El intervalo más bajo corresponde a ingresos mensuales inferiores a $3000 pesos argentinos, mientras que el más alto corresponde a aquellos que declararon ingresos de $10000 o superiores. Para todos los intervalos intermedios se trabaja con un rango de $1000.

La probabilidad de cada alternativa está dada por:

$$\Pr(y_i = r) = \Pr(\alpha_{r-1} < y_i^* \leq \alpha_r)$$

$$= \Pr(\alpha_{r-1} < x_i' . \beta + \mu_i \leq \alpha_r)$$

$$= \Pr(\alpha_{r-1} - x_i' . \beta < \mu_i \leq \alpha_r - x_i'.\beta)$$

$$= F(\alpha_r - x_i' . \beta) - F(\alpha_{r-1} - x_i' . \beta)$$

La función de distribución acumulada F (•) depende del supuesto sobre el término de error. Si μ_i sigue una distribución normal estándar $\mu_i \sim N(0,1)$, se tiene el modelo PO con F (•) = Φ (•), donde Φ (•) es la función de distribución acumulada de la normal estándar.

Dada la especificación no lineal que relaciona a la variable dependiente con las variables explicativas, y la naturaleza no cardinal de la variable dependiente, los coeficientes estimados no pueden ser interpretados como los estimadores de los efectos de las variables explicativas sobre las probabilidades de observar las diferentes categorías de la variable dependiente, así como tampoco indican necesariamente la dirección de la relación entre el valor de la variable explicativa y dichas probabilidades, con las excepciones de las categorías inferior (r =1) y superior (r =m) de la variable dependiente, es decir, un β_j positivo (negativo) no conduce necesariamente a un efecto positivo (negativo) sobre la probabilidad de observar una determinada realización de la variable dependiente. Es necesario entonces calcular el efecto marginal para cada una de las categorías de la variable explicada que tiene una determinada variable explicativa x_j, el cual no sólo no es constante a lo largo del rango de x_j e y, sino que también es función de los valores de las demás variables explicativas x_h para $h \neq j$. En particular, el efecto marginal sobre la probabilidad de que se observe el valor r para la variable dependiente de un cambio en una determinada variable explicativa x_j, viene dado por:

$$\partial \Pr(y_i^* = r|x_{ij}) / \partial x_{ij} = [F'(\alpha_r - x_i'.\beta) - F'(\alpha_{r-1} - x_i'.\beta)] . \beta_j$$

4. En cambio, si μ_i sigue una distribución logística, se tiene el modelo Logit ordenado con F(•)=Λ(•), donde Λ(•) es la función de distribución acumulada de la logística estándar. La utilización del modelo Logit Ordenado arroja resultados cualitativamente similares a los aquí reportados.

5. Los coeficientes β_j reflejan los efectos de las variables explicativas sobre la variable latente y_i^*.

Es así que el efecto marginal es la pendiente de la curva que relaciona a x_{ij} con $\Pr(y_i^* = r|x_{ij})$, manteniendo todas las demás variables constantes (Albarrán Pérez, 2010). Dado que este efecto marginal depende de los niveles de todas las variables, lo más común es evaluarlo en los valores medios de las demás variables. Para el caso de las variables explicativas que aquí interesan, dado su carácter dicotómico, los efectos marginales miden, ceteris paribus, el cambio en la probabilidad de observar una determinada realización de la variable dependiente, cuando la variable explicada cambia de la categoría base o de referencia a otra categoría particular. Por ejemplo, para el caso de la variable que mide el grado de incumbencia entre la ocupación y la carrera de grado estudiada, la cual puede asumir tres valores o categorías (0=No tiene; 1=Parcial, 2=Total), se procede a generar dos variables dicotómicas que corresponden a las categorías 1 y 2, respectivamente, siendo la categoría 0 la de referencia o base. Entonces, el efecto marginal, para cuando $y_i^* = r$, para la variable que corresponde a la categoría 1 (categoría 2) mide el cambio en la probabilidad de observar $y_i^* = r$ cuando se pasa de la categoría base (0=No tiene) a la categoría 1 (categoría 2).

A efectos de chequear la robustez de los resultados obtenidos mediante el modelo PO, se trabaja también con el modelo de RI (StataCorp, 2013). En este caso, se ajusta un modelo en el cual la variable dependiente puede asumir dos valores: $y=[y_1 , y_2]$. En particular, para cada observación y puede adoptar la forma de un intervalo con datos censurados por izquierda y/o derecha, así como también valores puntuales. En función de los datos que se disponen, se tienen 4 situaciones:

a) Aquellos que no declararon un ingreso determinado, y seleccionaron el intervalo que corresponde a un ingreso menor a $3000. En este caso, la variable y_1 asume un valor desconocido (*missing*), mientras que la variable y_2 asume el valor 3000.

b) Aquellos que no declararon un ingreso determinado, y seleccionaron el intervalo que corresponde a un ingreso de $10000 o más. En este caso, la variable y_1 asume el valor 10000, mientras que la variable y_2 asume un valor desconocido (*missing*).

c) Aquellos que declararon un determinado intervalo de ingresos diferente de los correspondientes a los casos a) y b) anteriores. En este caso, la

variable y_1 asume como valor el límite inferior del intervalo, mientras que la variable y_2 asume como valor el límite superior.

d) Cuando el encuestado declaró un valor determinado de ingreso, se tiene $y_1 = y_2$ igual al ingreso declarado.[6]

La RI es un estimador apropiado cuando se sabe en qué intervalo cae cada observación de la variable bajo análisis, pero no se conoce el valor exacto que asume cada observación. Así, una ventaja de la RI en relación al modelo PO es que la estimación hace uso no sólo del carácter ordinal de la variable dependiente, sino también de sus magnitudes.

Para el caso del presente trabajo se tienen datos sobre los rangos de ingresos, donde para los intervalos extremos los datos son censurados por izquierda (el intervalo más bajo) o por derecha (el intervalo más alto), para los demás intervalos las observaciones son censuradas tanto por izquierda como por derecha. Finalmente, para aquellos casos donde se declaró un determinado ingreso se tiene un valor puntual.

Para el caso de la RI se trabaja con el logaritmo natural de la variable dependiente, de forma que los coeficientes estimados que corresponden a las diferentes variables explicativas se pueden interpretar como elasticidades cuando para estas últimas también se trabaja con el logaritmo natural. En el caso de las variables de interés para esta investigación, dado el carácter dicotómico de las mismas, los coeficientes estimados miden, ceteris paribus, la semi-elasticidad del ingreso cuando se pasa de la categoría base o de referencia a otra categoría particular.

En resumen, se estiman los siguientes modelos:

(1) Probit ordenado

$$p_{ij} = \Pr(y_j = i) = \Pr(k_{i-1} < x_j \beta + u_i < k_i) = \Phi(k_i - x_j.\beta) - \Phi(k_{i-1} - x_j.\beta)$$

(2) Regresión por intervalos: $\ln(y_j) = x_j.\beta + u_j$

donde para $j \in C$, y_j es un valor puntual observado del ingreso del individuo j; para $j \in L$, y_j está censurada por izquierda, sabiéndose que y_j es igual

6. En todos los casos, al momento de las estimaciones se trabaja con el logaritmo natural de y_1, y_2.

o menor a y_{Lj} ; y para $j \in R$, y_j está censurada por derecha, sabiéndose que y_j es igual o mayor a y_{Rj}. Finalmente, para $j \in I$, y_j se ubica en el intervalo $[y_{1j}, y_{2j}]$.

En todos los casos, x_j es un vector de variables explicativas, trabajándose con el mismo conjunto de variables explicativas (ver Tabla 2) para los dos estimadores.

V. RESULTADOS

En esta sección se presentan y discuten los resultados que surgen de la aplicación de los dos estimadores antes descriptos. En función de la evidencia presentada en la Sección II, en la cual se llevó a cabo una breve reseña del marco teórico en el que se enmarca el presente estudio, se plantea la siguiente hipótesis primaria:

• Mayores grados de *matching* entre la educación adquirida durante la formación universitaria y la requerida por el puesto de trabajo, y entre las calificaciones adquiridas por el individuo y las requeridas por el trabajo, se asocian a mayores niveles de ingresos laborales.

Además se plantea un conjunto de hipótesis secundarias acerca de los posibles efectos de las variables de control sobre los ingresos laborales de los graduados:

• Una mayor edad se asocia a mayores salarios.

• La distinción por género implica una prima salarial a favor del hombre.

• Un mayor nivel educativo de los padres se refleja positivamente sobre los salarios.

• La formalidad laboral afecta positivamente a los salarios, en comparación al empleo informal.

• Tipo de carrera: se espera que carreras de mayor jerarquía (duración) debieran asociarse a mayores salarios.

• Respecto al sector de actividad, no hay a priori una expectativa de comportamiento, ya que existe una gran heterogeneidad dentro de cada sector (Público y Privado) en lo que se refiere a los tipos de trabajos.

Tabla 2: Codificación de Variables Explicativas

Variable	Codificación
Edad	En años
Género	Mujer = 0 Hombre = 1
Estado civil	Divorciado /separado /soltero = 0 Casado/unido = 1
Nivel educativo de padres	Universitarios incompletos o menos = 0 Universitarios completos = 1
Formalidad laboral	Informal = 0 Formal = 1
Sector de Actividad	Privado = 0 Público Municipal / Provincial = 1 Público Nacional = 2 Universidad = 3
Antigüedad	Intervalos (en años) Menos de 2 = 0 Entre 2 y 5 = 1 Entre 5 y 10 = 2 Más de 10 = 3
Horas promedio trabajadas	Intervalos (en horas semanales) Hasta 20 horas = 0 Desde 21 a 40 = 1 Más de 40 = 2
Match calificaciones: Incumbencia (relación de la ocupación con el área de incumbencia de la formación de grado)	No tiene = 0 Parcial = 1 Total = 2
Match calificaciones: Correspondencia (correspondencia entre las calificaciones adquiridas durante su formación de grado y las calificaciones requeridas por el trabajo)	Muy bajo = 0 Bajo = 1 Medio-Bajo = 2 Medio = 3 Medio-Alto = 4 Alto = 5 Muy alto = 6
Match calificaciones: Uso de conocimientos (uso o aplicación en el trabajo de los conocimientos adquiridos durante la formación de grado)	Nunca = 0 Casi nunca = 1 Esporádicamente = 2 Casi siempre = 3 Siempre = 4
Match Educación	Educado correctamente = 0 Sub-educado = 1 Sobre-educado = 2

Nota: todas las categorías numeradas con cero corresponden a la categoría que se utiliza como base o referencia.
Fuente: Elaboración propia.

• Una mayor cantidad de horas trabajadas debería relacionarse positivamente con los ingresos.

• Se espera que una mayor antigüedad en el trabajo se corresponda con mayores salarios.

Antes de proceder a la discusión de los resultados, se presentan de manera breve algunas estadísticas descriptivas de la situación laboral de los 158 graduados considerados en el análisis econométrico, específicamente para aquellas variables que constituyen el objetivo principal del estudio.

Si se considera la distribución de los graduados de acuerdo a los intervalos de ingresos se tiene que, si bien el mayor porcentaje de titulados se ubica en el intervalo superior correspondiente a la escala de $10000 o más, existe una alta participación en intervalos de ingresos medios bajos y medios altos. El resto de las observaciones se concentran entre los niveles bajos, medios y altos (ver Tabla 3).

Respecto a las medidas subjetivas de desajustes tanto educativo como en calificación, la Tabla 4 reporta su distribución. Del total de la muestra un 20,8% de los graduados declaró estar *sub-educados*, casi un 25% manifestó estar *sobre-educado*, mientras que más del 50% consideró tener la educación adecuada para su puesto de trabajo.

En cuanto a la relación de la ocupación con el área de incumbencia de su formación de grado, el mayor porcentaje (66.7%) corresponde a graduados que manifestaron la existencia de una *relación total*, el 25.4% declaró una *relación parcial* entre su formación académica y su ocupación, mientras que sólo un 7.9% señaló que no había relación alguna.

En relación al grado de correspondencia entre las calificaciones adquiridas durante su formación de grado, y aquellas requeridas por el trabajo, se observa que casi el 69% declaró un grado de correspondencia *Medio-alto/Alto/Muy-alto*, poco más del 18% indicó un nivel *Medio*, mientras que un 12.6% manifestó un grado de correspondencia *Muy-bajo/Bajo/Medio-bajo*.

Por último, al indagar por la frecuencia de uso de conocimientos adquiridos en la formación académica en el desempeño diario de su trabajo, más del 75% de los consultados seleccionó la alternativa *Casi siempre/*

Tabla 3: Distribución de ingresos promedio mensual

Ingresos promedio mensual	%
Menos de $3000	7.6
Desde $3000 y menos de $4000	4.9
Desde $4000 y menos de $5000	15.3
Desde $5000 y menos de $6000	12.6
Desde $6000 y menos de $7000	8.2
Desde $7000 y menos de $8000	8.7
Desde $8000 y menos de $9000	12.6
Desde $9000 y menos de $10000	8.7
$10000 o más	21.4

Fuente: Elaboración propia.

Tabla 4: Match en educación y calificación entre los graduados de la UNdeC

Variables	%
Match en Educación	
Sub-educado	20.8
Correctamente-educado	54.6
Sobre-educado	24.6
Match de Calificaciones	
Incumbencia	
No tiene	7.9
Parcial	25.4
Total	66.7
Correspondencia	
Muy bajo/Bajo/Medio-Bajo	12.6
Medio	18.6
Medio-Alto/Alto/Muy alto	68.8
Usos de conocimientos	
Nunca/Casi nunca	6.6
Esporádicamente	17.5
Casi siempre/Siempre	75.9

Fuente: Elaboración propia.

Siempre, el 17.5% declaró una aplicación *Esporádica*, mientras que el resto optó por la opción *Nunca/Casi nunca*.

De acuerdo a los porcentajes presentados se puede concluir que, aparentemente, no se observa un importante problema de desajuste tanto en educación como en calificaciones de individuos frente a sus puestos de trabajo. Principalmente para el caso de la calificación, ya que se obtienen altos niveles de *matching* para las tres variables analizadas.

En la Tabla 5 se muestran las estimaciones que surgen del modelo PO. Al considerar las variables incluidas como controles, se observa que los coeficientes que acompañan a la variable Edad son estadísticamente significativos al 1% y poseen signo positivo sugiriendo que a mayor edad aumenta la probabilidad de estar en los intervalos más altos de ingresos. Igual comportamiento se repite para las variables Educación de los padres y Formalidad laboral, los coeficientes de la primera sugieren que tener padres que poseen estudios universitarios completos aumenta la probabilidad que el individuo se ubique entre los intervalos de ingresos más altos, en comparación con aquellos con padres con un menor nivel educativo; mientras que poseer un trabajo registrado tiene un fuerte efecto sobre los salarios, aumentando la probabilidad de pertenecer a los intervalos más altos.

En relación al tipo de carrera, variable categorizada de acuerdo a la duración, presenta resultados, en general, muy débiles. Lo mismo ocurre con la variable antigüedad para la cual se obtienen coeficientes no significativos.

Respecto a la variable que controla por el sector de actividad, se obtiene que con un nivel de significación del 5% pertenecer al sector público nacional está asociado a una mayor probabilidad de estar en los intervalos más altos de ingresos en relación al sector privado. Las demás categorías de dicha variable aparentemente no tienen efectos sobre la probabilidad de pertenecer a determinados intervalos relativo a estar empleado en el sector privado.

Por último, se observa que la cantidad de horas promedio trabajadas tiene un efecto significativo al 1% cuando se considera el intervalo de 21 a 40 horas semanales, observándose un efecto aún mayor cuando se trabaja más de 40 horas por semana. Ambas categorías se comparan con un pro-

Tabla 5: **Coeficientes de Regresiones del Modelo Probit Ordenado**

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Edad	0.0397 **	0.0392 **	0.0448 ***	0.0435 ***	0.0418 **	0.0441 ***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)
Género: Hombre	0.1075	-0.0351	0.0753	0.0761	0.0729	0.0924
	(0.2060)	(0.207)	(0.204)	(0.205)	(0.215)	(0.218)
Estado Civil: Casado/Unido	0.211	0.0857	0.2177	0.1860	0.2083	0.2111
	(0.181)	(0.186)	(0.183)	(0.180)	(0.193)	(0.193)
Educ. padres: Universitarios completos	0.6616 ***	0.7613 ***	0.6633 ***	0.6589 ***	0.8023 ***	0.8023 ***
	(0.249)	(0.258)	(0.25)	(0.249)	(0.26)	(0.260)
Formalidad laboral: Formal	1.1518 ***	1.2327 ***	1.1523 ***	1.0808 ***	1.2439 ***	1.1778 ***
	(0.272)	(0.28)	(0.272)	(0.280)	(0.282)	(0.295)
Tipo carrera: Tecn./Lics. Cortas	-0.1175	-0.1320	-0.1672	-0.307	-0.0671	-0.2225
	(0.324)	(0.336)	(0.326)	(0.360)	(0.342)	(0.379)
Tipo carrera: Ab./Lic.s Largas/Ings.	0.3641	0.5302	0.2541	0.1233	0.5623*	0.3413
	(0.317)	(0.329)	(0.315)	(0.390)	(0.336)	(0.420)
Sector: Púb. Municipal/Provincial	0.0799	0.0959	0.0355	0.0627	0.1699	0.1808
	(0.371)	(0.366)	(0.367)	(0.364)	(0.377)	(0.378)
Sector: Púb. Nacional	0.9601 **	0.9649 **	0.9644 **	0.9830 **	1.0325 **	1.0514 **
	(0.419)	(0.422)	(0.418)	(0.419)	(0.428)	(0.432)
Sector: Universidad Nacional	0.0120	-0.1691	0.0757	0.0904	-0.2097	-0.1608
	(0.462)	(0.472)	(0.464)	(0.465)	(0.476)	(0.481)

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.

Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia

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Tabla 5: **Coeficientes de Regresiones del Modelo Probit Ordenado (continuación)**

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Antigüedad: De 2 hasta 5 años	-0.1814	-0.1322	-0.2248	-0.1697	-0.2275	-0.2401
	(0.252)	(0.249)	(0.255)	(0.251)	(0.26)	(0.262)
Antigüedad: más de 5 hasta 10 años	0.0478	0.1611	-0.0145	0.0098	0.0985	0.0626
	(0.259)	(0.263)	(0.261)	(0.266)	(0.267)	(0.273)
Antigüedad: más de 10 años	-0.1690	-0.0667	-0.3009	-0.1763	-0.0929	-0.074
	(0.379)	(0.386)	(0.38)	(0.383)	(0.396)	(0.400)
Horas promedio: De 21 a 40	0.5680 ***	0.6456 ***	0.5824 ***	0.6427 ***	0.5252 **	0.5543 **
	(0.219)	(0.22)	(0.218)	(0.217)	(0.232)	(0.234)
Horas promedio: Más de 40	1.0825 ***	1.2362 ***	1.1431 ***	1.1950 ***	1.2347 ***	1.3092 ***
	(0.393)	(0.399)	(0.391)	(0.394)	(0.407)	(0.413)
Correspondencia: Bajo		0.9816			0.7959	0.8336
		(0.655)			(0.704)	(0.705)
Correspondencia: Medio bajo		1.0695*			0.9243	0.9747
		(0.611)			(0.643)	(0.645)
Correspondencia: Medio		0.9851*			0.7779	0.7648
		(0.511)			(0.537)	(0.537)
Correspondencia: Medio alto		1.2339 **			1.1842 **	1.1568 **
		(0.509)			(0.533)	(0.535)
Correspondencia: Alto		1.5208 ***			1.5313 ***	1.5336 ***
		(0.523)			(0.541)	(0.541)
Correspondencia: Muy alto		1.4868 **			1.5399 ***	1.5143 **
		(0.580)			(0.588)	(0.589)

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.

Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia

Tabla 5: **Coeficientes de Regresiones del Modelo Probit Ordenado (continuación)**

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Incumbencia: Parcial	0.4633				0.6264	0.6134
	(0.369)				(0.419)	(0.422)
Incumbencia: Total	0.5158				0.9186 **	0.8885 **
	(0.342)				(0.441)	(0.447)
Uso conocimientos: Casi nunca			0.1752		-0.1396	-0.1578
			(0.701)		(0.748)	(0.748)
Uso conocimientos: Esporádicamente			0.5336		-0.0054	-0.0765
			(0.563)		(0.702)	(0.705)
Uso conocimientos: Casi siempre			0.4400		-0.4929	-0.6006
			(0.544)		(0.728)	(0.735)
Uso conocimientos: Siempre			0.1749		-0.8848	-0.9775
			(0.539)		(0.724)	(0.73)
Educación : Sub Educado				-0.2629		-0.2701
				(0.301)		(0.313)
Educación: Sobre Educado				-0.2386		-0.217
				(0.222)		(0.25)
Pseudo R-cuadrado	0.1176	0.1299	0.1192	0.1165	0.1452	0.1469

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.
Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia

medio de horas inferior a 20 semanales. En ambos casos los coeficientes son, como es de esperar, positivos, por lo cual trabajar un mayor número de horas aumentaría las probabilidades de ubicarse en los intervalos más altos de ingresos.

Pasando a las variables que constituyen el objetivo central del estudio, se observa que, para el caso de Correspondencia, el patrón de comportamiento de los coeficientes indica que niveles más elevados de correspondencia coinciden con coeficientes mayores, como se esperaba, aunque los coeficientes, generalmente, son significativos al 5% y 1% a partir de un nivel Medio-alto de correspondencia entre las calificaciones adquiridas durante la formación de grado y las calificaciones requeridas por el trabajo.

Respecto a la Incumbencia, que refleja la relación de la ocupación con el área de la formación de grado, se observan coeficientes positivos y crecientes a medida que aumenta el grado de incumbencia. Sin embargo, en el caso de un nivel parcial la estimación resulta ser no significativa, lo cual no es el caso para un nivel total, que tiene un efecto positivo y significativo sobre la probabilidad de pertenecer a los intervalos más altos de ingresos. Por último, en cuanto al uso de conocimientos adquiridos, los coeficientes son negativos, contrario a lo que se esperaría, aunque los mismos resultan ser no significativos estadísticamente.

En cuanto a la variable que mide el *matching* educativo, en ambos casos los coeficientes no son estadísticamente significativos.

Como se mencionó en la sección anterior, a causa de la no linealidad de la relación entre la variable explicada y las variables explicativas, además de la naturaleza ordinal de la variable dependiente, los signos de los coeficientes proveen información sobre los cambios en las probabilidades de ubicarse en el intervalo más bajo o más alto de ingreso. A los efectos de poder analizar de manera completa los efectos de las distintas variables sobre las probabilidades de ubicarse en un determinado intervalo de ingreso es necesario el cálculo de los efectos marginales. Dado que para cada variable se tiene tantos efectos marginales como intervalos de ingresos, y en función del objetivo del presente trabajo, sólo se discuten aquellos que corresponden a las variables que miden el *matching* en términos de educación y en términos de calificaciones. Se comentan los resultados que corresponden a

la especificación número (6), la cual incluye todo el conjunto de variables explicativas.

Como se reporta en la Tabla 6, para la variable Incumbencia se observa que ambas categorías (parcial y total) en relación a una incumbencia nula exhiben coeficientes negativos para los intervalos 1 al 4, lo que indica una disminución de la probabilidad de pertenecer a esos niveles más bajos de ingresos. A partir del intervalo 5, los coeficientes adoptan un signo positivo y se hacen mayores a medida que aumenta el intervalo. Un punto a considerar es el salto en magnitud que experimenta el coeficiente correspondiente al intervalo 9 en relación a los demás intervalos. Con excepción del intervalo 5, se tiene que la influencia sobre los salarios al pasar de una incumbencia nula a una total es mayor a la del pasaje a una incumbencia parcial desde la categoría de referencia.

En lo que a significancia estadística se refiere, los coeficientes de incumbencia parcial únicamente son significativos al 10% en el intervalo 9, mientras que para un grado de incumbencia total lo es a niveles del 5% y 10% en los intervalos del 2 al 4 y para los dos superiores (8 y 9). Cuantitativamente, el coeficiente negativo correspondiente al intervalo 2 de incumbencia total implica que cuando un individuo pasa de una incumbencia nula a una total, la probabilidad que dicho individuo perciba un ingreso entre $3000 y $4000 disminuye en poco menos del 4% (-0.0372). Mientras que para el caso del intervalo 9 se tiene que la probabilidad de que un individuo cobre más de $10000 aumenta en casi un 15% cuando este pasa de un nivel de incumbencia nula a uno total.

Para el caso de los efectos del grado de correspondencia sobre los ingresos, se tiene que una mayor correspondencia entre las calificaciones adquiridas y las requeridas disminuye la probabilidad de ubicarse en los intervalos bajos de ingresos (hasta $5000), sin embargo los efectos son estadísticamente significativos para niveles de correspondencia Medio-Alto a Muy-Alto. Para los intervalos medios de ingreso, entre $5000 y $8000 no se obtienen efectos significativos.

Por último, para los intervalos de ingresos más altos, más de $8000, una mayor correspondencia entre calificaciones adquiridas y requeridas significa una mayor probabilidad de ubicarse en los intervalos superiores de ingresos,

Tabla 6: **Efectos Marginales del Modelo Probit Ordenado**

Variable/Intervalo	Intervalo 1	Intervalo 2	Intervalo 3	Intervalo 4	Intervalo 5	Intervalo 6	Intervalo 7	Intervalo 8	Intervalo 9
Incumbencia (1): Parcial	-0.0970	-0.0263	-0.0448	-0.0049	0.0072	0.0139	0.0291	0.0309	0.0919*
	(0.221)	(0.187)	(0.104)	(0.632)	(0.447)	(0.286)	(0.203)	(0.170)	(0.094)
Incumbencia: Total	-0.1261	-0.0372*	-0.0707**	-0.0158*	0.0054	0.0157	0.0378	0.0435*	0.1475**
	(0.127)	(0.093)	(0.016)	(0.096)	(0.560)	(0.244)	(0.114)	(0.071)	(0.012)
Correspondencia (2): Bajo	-0.1610	-0.0331	-0.0412	0.0103	0.0176	0.0251	0.0440	0.0411	0.0972
	(0.238)	(0.258)	(0.399)	(0.675)	(0.286)	(0.232)	(0.223)	(0.247)	(0.306)
Correspondencia: Medio-bajo	-0.1798	-0.0391	-0.0535	0.0069	0.0181	0.0274	0.0501	0.0483	0.1215
	(0.170)	(0.145)	(0.195)	(0.781)	(0.277)	(0.177)	(0.129)	(0.128)	(0.151)
Correspondencia: Medio	-0.1511	-0.0301	-0.0355*	0.0114	0.0170	0.0237	0.0408	0.0375	0.0862*
	(0.228)	(0.140)	(0.082)	(0.584)	(0.305)	(0.230)	(0.173)	(0.143)	(0.077)
Correspondencia: Medio-alto	-0.2005	-0.0466**	-0.0704***	0.0004	0.0175	0.0291	0.0567*	0.0573**	0.1565***
	(0.107)	(0.044)	(0.003)	(0.984)	(0.294)	(0.143)	(0.060)	(0.032)	(0.003)
Correspondencia: Alto	-0.2327*	-0.0601**	-0.1063***	-0.0188	0.0118	0.0280	0.0645**	0.0727**	0.2410***
	(0.062)	(0.022)	(0.000)	(0.428)	(0.483)	(0.161)	(0.036)	(0.011)	(0.000)
Correspondencia: Muy alto	-0.2314*	-0.0595**	-0.1045***	-0.0177	0.0122	0.0282	0.0643**	0.0720**	0.2363***
	(0.065)	(0.028)	(0.003)	(0.523)	(0.492)	(0.164)	(0.036)	(0.014)	(0.005)

Nota: Categorías de Referencia: (1) No tiene; (2) Muy bajo; (3) Nunca; (4) Educado correctamente.
Número de Observaciones: 158.Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Valor p entre paréntesis.
Fuente: Elaboración propia.

Tabla 6: **Efectos Marginales del Modelo Probit Ordenado (continuación)**

Variable/Intervalo	Intervalo 1	Intervalo 2	Intervalo 3	Intervalo 4	Intervalo 5	Intervalo 6	Intervalo 7	Intervalo 8	Intervalo 9
Uso conocimientos (3):	0.0090	0.0044	0.0133	0.0094	0.0041	0.0030	0.0009	-0.0032	-0.0410
Casi nunca	(0.830)	(0.830)	(0.831)	(0.834)	(0.837)	(0.843)	(0.901)	(0.829)	(0.834)
Uso conocimientos:	0.0042	0.0021	0.0064	0.0046	0.0021	0.0016	0.0007	-0.0014	-0.0201
Esporádicamente	(0.910)	(0.911)	(0.912)	(0.914)	(0.916)	(0.918)	(0.931)	(0.904)	(0.914)
Uso conocimientos:	0.0452	0.0194	0.0530	0.0319	0.0118	0.0061	-0.0047	-0.0187	-0.1440
Casi siempre	(0.296)	(0.346)	(0.375)	(0.461)	(0.555)	(0.689)	(0.615)	(0.196)	(0.451)
Uso conocimientos:	0.0915*	0.0344	0.0850	0.0434	0.0126	0.0024	-0.0180	-0.0367**	-0.2146
Siempre	(0.051)	(0.124)	(0.150)	(0.312)	(0.529)	(0.876)	(0.122)	(0.023)	(0.255)
Educación (4): Sub-educado	0.0286	0.0105	0.0249	0.0108	0.0020	-0.0014	-0.0082	-0.0124	-0.0550
	(0.395)	(0.411)	(0.392)	(0.393)	(0.456)	(0.526)	(0.397)	(0.396)	(0.389)
Educación: Sobre-educado	0.0230	0.0085	0.0200	0.0087	0.0016	-0.0011	-0.0066	-0.0099	-0.0442
	(0.396)	(0.405)	(0.384)	(0.388)	(0.446)	(0.537)	(0.398)	(0.391)	(0.384)

Nota: Categorías de Referencia: (1) No tiene; (2) Muy bajo; (3) Nunca; (4) Educado correctamente.
Número de Observaciones: 158.Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Valor p entre paréntesis.
Fuente: Elaboración propia.

sin embargo nuevamente los efectos son significativos para niveles de correspondencia Medio-Alto hasta Muy-Alto para ingresos entre $8000 y $10000, y entre Medio y Muy-Alto para ingresos superiores a $10000. Un patrón que se repite en aquellos casos en donde los efectos marginales son estadísticamente significativos es que la magnitud absoluta de los mismos aumenta con el mayor nivel de correspondencia, en especial para el caso de los intervalos de ingresos más bajo (menos de $3000) y más alto (más de $10000).

En relación a la frecuencia de uso de conocimientos se observa un patrón de comportamiento de coeficientes inverso al de las variables anteriores, pues estos son positivos para intervalos bajos y negativos para los niveles de ingresos más altos. Esto significa que, en contra de lo que se esperaría, a medida que un individuo pasa de una situación en la que la aplicación de conocimientos es nula a otra en la cual los aplica (en distintos grados), aumentaría la probabilidad de pertenecer a intervalos bajos y disminuiría la probabilidad de pertenecer a los más altos. Sin embargo, los efectos estimados no son estadísticamente significativos.

Por último, para los efectos marginales de los desajustes educativos, los resultados reportan que encontrarse sub-educado o sobre-educado, respecto a la situación de estar correctamente educado, no tienen un impacto significativo desde un punto de vista estadístico.

Para chequear la robustez de los resultados anteriores, se estimó un modelo de RI, en el cual la variable dependiente es el logaritmo natural del ingreso mensual promedio. A diferencia del modelo PO, en este caso los coeficientes estimados representan las semi-elasticidades del ingreso para cada una de las variables explicativas. Como se puede observar en la Tabla 7, los efectos asociados a las variables Edad, Educación de los padres y Formalidad laboral son, por lo general, estadísticamente significativas al 10%. Los signos de los coeficientes estimados se encuentran en línea con las hipótesis planteadas. En cuanto al sector de actividad, y a diferencia de lo que acontece para el modelo PO, la misma no es significativa en todas sus categorías. Para las variables que controlan por el número de horas trabajadas, los coeficientes de las mismas son positivos y crecientes en el número de horas. En la mayoría de las especificaciones, para aquellos que trabajan más de 40 horas a la semana, los coeficientes estimados son estadísticamente significativos.

Tabla 7: Coeficientes de Regresiones - Modelo Regresión por Intervalos

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Edad	0.0155*	0.0157*	0.0193 **	0.0180*	0.0171*	0.0179**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Género: Hombre	0.0719	-0.0064	0.0496	0.0368	0.0655	0.0592
	(0.115)	(0.114)	(0.114)	(0.116)	(0.114)	(0.116)
Estado Civil: Casado/Unido	0.0730	0.0125	0.0774	0.0611	0.0846	0.0873
	(0.102)	(0.103)	(0.103)	(0.103)	(0.102)	(0.102)
Educ. padres: Universitarios completos	0.2954**	0.3438**	0.2900**	0.2918**	0.3406**	0.3436**
	(0.139)	(0.140)	(0.139)	(0.140)	(0.136)	(0.136)
Formalidad laboral: Formal	0.5768***	0.6095***	0.5835***	0.5774***	0.5877***	0.5950***
	(0.146)	(0.148)	(0.146)	(0.153)	(0.144)	(0.151)
Tipo carrera: Tecn./Lics. Cortas	0.0195	-0.003	-0.0119	-0.0652	0.0468	0.0065
	(0.183)	(0.187)	(0.185)	(0.207)	(0.184)	(0.204)
Tipo carrera: Ab./Lic.s Largas/Ings.	0.1998	0.2636	0.1448	0.0892	0.2800	0.2133
	(0.180)	(0.184)	(0.179)	(0.224)	(0.181)	(0.227)
Sector: Púb. Municipal/Provincial	-0.1154	-0.1116	-0.1239	-0.1287	-0.0702	-0.0629
	(0.207)	(0.201)	(0.205)	(0.206)	(0.198)	(0.199)
Sector: Púb. Nacional	0.2116	0.2082	0.2300	0.2411	0.2275	0.2419
	(0.234)	(0.231)	(0.233)	(0.236)	(0.225)	(0.227)
Sector: Universidad Nacional	-0.2926	-0.3821	-0.2446	-0.2442	-0.4095	-0.3911
	(0.258)	(0.260)	(0.259)	(0.263)	(0.252)	(0.254)

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.

Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia.

Tabla 7: Coeficientes de Regresiones - Modelo Regresión por Intervalos (continuación)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Antigüedad: De 2 hasta 5 años	-0.058	-0.0239	-0.0702	-0.0504	-0.0727	-0.0819
	(0.141)	(0.137)	(0.142)	(0.141)	(0.137)	(0.139)
Antigüedad: más de 5 hasta 10 años	0.1783	0.2297	0.1412	0.1576	0.1865	0.1705
	(0.145)	(0.145)	(0.146)	(0.151)	(0.142)	(0.145)
Antigüedad: más de 10 años	-0.0331	0.0093	-0.1181	-0.0643	-0.0105	-0.0225
	(0.214)	(0.215)	(0.215)	(0.219)	(0.212)	(0.214)
Horas promedio: De 21 a 40	0.1885	0.2300*	0.1995	0.2302*	0.1316	0.1331
	(0.123)	(0.121)	(0.122)	(0.122)	(0.123)	(0.124)
Horas promedio: Más de 40	0.3143	0.3862*	0.3711*	0.3760*	0.3577*	0.3702*
	(0.216)	(0.214)	(0.215)	(0.218)	(0.21)	(0.212)
Correspondencia: Bajo		0.4121			0.2588	0.2735
		(0.364)			(0.376)	(0.377)
Correspondencia: Medio bajo		0.5156			0.4167	0.4246
		(0.339)			(0.342)	(0.343)
Correspondencia: Medio		0.4342			0.2889	0.2877
		(0.282)			(0.286)	(0.286)
Correspondencia: Medio alto		0.5840**			0.5132*	0.5225*
		(0.279)			(0.281)	(0.283)
Correspondencia: Alto		0.7314**			0.7011**	0.7061**
		(0.286)			(0.285)	(0.285)
Correspondencia: Muy alto		0.6454**			0.6537**	0.6570**
		(0.318)			(0.311)	(0.312)

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.

Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia.

Tabla 7: Coeficientes de Regresiones - Modelo Regresión por Intervalos (continuación)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Incumbencia: Parcial	0.3070				0.4083*	0.4179*
	(0.207)				(0.221)	(0.222)
Incumbencia: Total	0.3250*				0.5566**	0.5689**
	(0.189)				(0.228)	(0.231)
Uso conocimientos Casi nunca			0.0797		-0.1146	-0.1196
			(0.401)		(0.403)	(0.403)
Uso conocimientos: Esporádicamente			0.2530		-0.1094	-0.1165
			(0.320)		(0.374)	(0.375)
Uso conocimientos: Casi siempre			0.2618		-0.3070	-0.3219
			(0.309)		(0.384)	(0.387)
Uso conocimientos: Siempre			0.0588		-0.5799	-0.5835
			(0.307)		(0.384)	(0.386)
Educación : Sub Educado				-0.1096		-0.0832
				(0.172)		(0.168)
Educación: Sobre Educado				-0.0397		0.0132
				(0.125)		(0.132)

Nro. Observaciones: 158. Nivel de Significancia: *** p<0,01 ** p<0,05 * p<0,1. Error estándar entre paréntesis.

Nota: Categorías de referencia: Mujer, Divorciado/Separado/Soltero, Universitarios Incompletos o menos, Informal, Profesorados, Privado, Menos de 2 años, Hasta 20 horas, Muy bajo, No tiene, Nunca, Correctamente educado. Fuente: Elaboración propia.

En cuanto a las variables que controlan por el grado de ajuste entre calificaciones y educación, se obtiene que en el caso de la variable Correspondencia los coeficientes estimados son positivos, pero a medida que aumenta el nivel de correspondencia las estimaciones no siguen un patrón definido, aunque se observa un mayor efecto para niveles de correspondencia Medio-Alto/Alto/Muy Alto en relación a los casos Bajo/Medio-Bajo/Medio. En cuanto a la significación de los coeficientes estimados, los mismos lo son sólo para los tres niveles más altos de correspondencia. Por ejemplo, se tiene que cuando un individuo pasa de un nivel de correspondencia Muy-Bajo a uno Muy-Alto el ingreso promedio aumentaría aproximadamente en un 65.7%.

Para la variable Incumbencia se observa igual comportamiento que con el modelo PO, a medida que aumenta la relación aumenta el coeficiente. Los resultados resultan significativos en ambas categorías para el caso de la RI.

Respecto a la variable Uso de conocimientos, nuevamente se observa un comportamiento opuesto al esperado, un mayor uso de conocimientos se correspondería con menores ingresos, aunque como con las estimaciones anteriores, los efectos no son significativos.

Por último, el comportamiento de los coeficientes de desajustes educativo indica que estar sub-educado o sobre-educado carece de significación estadística en lo que respecta al nivel de ingresos.

En resumen, se tiene que entre las variables explicativas de control, solamente Edad, Educación de los padres y Formalidad laboral arrojan estimaciones significativas en los dos modelos ajustados, indicando para cada caso un efecto positivo sobre la variable dependiente. En relación a la variable Sector, sólo se obtienen coeficientes significativos para las estimaciones del PO, siendo únicamente significativa la categoría Público. Por último, considerando las Horas promedio semanales ambas estimaciones sugieren que el número de horas trabajadas afectan positivamente al nivel de ingresos.

Al observar los efectos marginales, los coeficientes para los distintos grados de Correspondencia como de Incumbencia sugieren que a medida que aumenta el *matching* de calificaciones, disminuye la probabilidad de pertenecer a intervalos inferiores de ingresos, generalmente hasta $5000, y

aumenta la probabilidad de ubicarse entre los niveles más elevados de ingresos. Resultado opuesto se obtiene para el caso de Uso de conocimientos, aunque los resultados no son significativos. Respecto al *matching* educativo, los resultados no son estadísticamente significativos. Los resultados del modelo de RI confirman, en general, los resultados anteriores.

VI. Resumen y Conclusiones

El objetivo del trabajo es analizar los efectos de los desajustes en términos de calificación y educación sobre los ingresos laborales de los graduados de la UNdeC. En base a la literatura existente, se ha derivado una hipótesis primaria que plantea que mayores grados de *matching* entre la educación adquirida y requerida, como así también entre las calificaciones adquiridas y requeridas por el puesto de trabajo se asocian a mayores niveles de salarios. Además se proponen hipótesis secundarias sobre el efecto de variables personales, académicas y laborales sobre los ingresos. El análisis se realizó mediante la estimación de un modelo PO, y como ejercicio de robustez se estimó también un modelo de RI.

Los resultados obtenidos sugieren que a mayor grado de correspondencia entre las calificaciones adquiridas durante la formación de grado en la UNdeC y las requeridas por el trabajo incrementa la probabilidad de pertenecer a intervalos más altos de ingresos, particularmente para los tres niveles superiores de correspondencia. En cuanto a la relación de la ocupación con el área de incumbencia de la formación de grado se observa que una mayor relación implica un aumento en la probabilidad de ubicarse entre los intervalos superiores y la disminuye respecto a niveles bajos, pero estos resultados son significativos para los niveles inferiores y para los dos niveles superiores de ingresos. Estadísticamente, la aplicación de conocimientos obtenidos durante la carrera de grado no tiene efectos sobre los ingresos. En cuanto al *mismatch* educativo, no se puede afirmar estadísticamente que estos desajustes expliquen el comportamiento de los ingresos. Si bien una posibilidad para este último resultado podría ser la correlación entre los *matching* en función de calificaciones y de educación, aunque cuando las variables se incorporan de manera separada los resultados se mantienen.

El ejercicio de robustez apoya, en general, los resultados obtenidos previamente.

Es importante resaltar que la presente investigación no ha buscado realizar un test del marco teórico presentado y que los resultados no buscan explicar los fenómenos de *mismatch*, sino su relación con los ingresos del trabajo asalariado. Aun así, en función de la evidencia discutida en la Sección II, los resultados obtenidos están en línea con la misma, con un mejor matching asociado a mayores ingresos.

A modo de reflexión, se considera que a partir del aporte que realiza esta investigación respecto a la generación y análisis de información sobre la inserción laboral de los graduados y los efectos de los posibles desajustes en términos de educación y calificación, resulta de gran importancia profundizar sobre esta temática mediante la creación de un mecanismo de seguimiento de graduados de la UNdeC que proporcione información pertinente y actualizada sobre el proceso de empleabilidad de los mismos. A partir del cual se tienda a detectar la existencia de posibles problemáticas y/o desajustes, y corregirlos mediante políticas orientadas a promover el empleo a través de pasantías, talleres laborales, proyectos de inversión; de modo que la Universidad establezca un vínculo estable y continuo entre el graduado y el mercado de trabajo de la región.

VII. REFERENCIAS

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The European Crisis and the Myth of the Irish Recovery: an Insight*

La crisis europea y la leyenda de la recuperación irlandesa: un enfoque

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Abstract

In this paper I first review the main points of the European crisis, showing that the credibility of a time-infinite fixed exchange rate, together with the free movement of capitals in the EU determined overconfidence, an excessive fall in interest rates, and overborrowing that made the system collapse when the external–originated crisis struck, damaging public finances as the banking system had to be rescued by governments. Secondly, I scrutinize an apparent success story of austerity-linked recovery from the crisis: Ireland. I outline that the outgoing government in 2010 acted well in the midst of the financial crisis, regardless of the effectiveness and desirability of the austerity measures. But I also collect facts and figures evidencing that what appears to be a true recovery is only being obtained by means of some unavoidable accounting tricks depending on a new mandatory national accounting EU rule about the treatment of investments. Unfortunately all this produces inflated figures for the GDP and GNP, while the standards of living of Irish citizens continue to fall behind.

Keywords: Eurozone, banking crisis, austerity measures, interest rates, GDP, GNP.

JEL Classification: E65, F34, F45.

*. The views expressed in this paper are those of the author and do not necessarily reflect those of the Agency for Territorial Cohesion. The usual disclaimer applies.

RESUMEN

En este artículo en primer lugar examino los puntos principales de la crisis de la eurozona (UME), mostrando que la credibilidad de un tipo de cambio fijo, junto con la libre circulación de capitales en la UME determinó un exceso de confianza, una caída excesiva de las tasas de interés y superabudancia en la demanda de prestamos, lo que hizo colapsar el sistema cuando se produjo la nombrada crisis la cual tuvo origen en el exterior de la zona. Esa crisis dañó las finanzas públicas, pues que el sistema bancario tuvo que ser rescatado por los gobiernos. En segundo lugar, analizo una aparente historia de éxito de la recuperación de la crisis que parece debida a la austeridad: la de Irlanda. Resalto que el gobierno irlandés saliente en 2010 actuó bien en el medio de la crisis financiera, a pesar de la eficacia y conveniencia de las medidas de austeridad. Pero también recojo hechos y cifras sobre lo que sólo aparentemente parece ser una verdadera recuperación y que sin embargo se obtuvo mediante algunos trucos de contabilidad inevitables y dependientes de una nueva normativa obligatoria de contabilidad nacional tomada a nivel de la UE y relativa al tratamiento de las inversiones. Desafortunadamente todo esto produjo y todavía produce cifras infladas para el PIB y el PNB, mientras que los estándares de vida de los ciudadanos irlandeses siguen siendo no muy afectados.

Palabras clave: Eurozona, crisis bancaria, medidas de austeridad, tipos de interés, PIB, RNB.

Clasificación JEL: E65, F34, F45.

I. INTRODUCTION

The EU's debt crisis was initially triggered by events occurred in the American banking sector. When a slowdown in the US economy caused over-extended American homeowners to default on their mortgages, banks all over the world with investments linked to those mortgages started losing money. America's fourth largest investment bank, Lehman Brothers, collapsed under the weight of its bad investments, scaring other banks and investors with which it did business. The fear that more banks could fail caused investors and banks to take extreme precautions. Banks stopped lending to each other, pushing those reliant on such loans close to the edge.

European banks that had invested heavily in the American mortgage market were it hard. In an attempt to avoid the failure of some banks, governments came to the rescue in many EU countries like Germany, France, the UK, Ireland, Denmark, the Netherlands and Belgium. But the cost of bailing those banks out proved to be very high. In Ireland it almost bankrupted the government until fellow EU countries stepped in with financial assistance.

As the EU and Europe as a whole slipped into recession in late 2008, a problem that started in the banks began to affect governments more and more, as markets worried that some countries could not afford to rescue banks in trouble. Investors began to look more closely at the finances of governments. Greece came under particular scrutiny because its economy was in very bad shape and successive governments had racked up debts nearly twice the size of the economy (European Commission, 2014).

Furthermore, in late 2009, the then recently appointed Greek Prime Minister George Papandreou announced that Greek previous governments had failed to reveal the true size of the nation's deficit. Greece's debt were larger than what had been previously reported.[1] After this announcement, the Portuguese, Spanish and Italian public debts also started becoming a matter of concern no matter their ratio to GDP was.

II. What happened to countries' indebtedness

Thus, the European crisis was regarded as an external shock originating from the US subprime mortgage meltdown. The former EU Commission President José Manuel Barroso[2] stated that "the crisis originated in North America and much of our financial sector was contaminated by… unorthodox practices from some sectors of the financial market".[3]

However, at least Greece and Italy already had a high debt to GDP ratio long before the US financial crisis blew up. Why then, say, did Greece

1. Indeed, in 2004 Eurostat had already revealed that Greek statistics on budget deficit had been under-reported at the time Greece was accepted into the European Monetary Union. According to Eurostat, the 1999 deficit was 3.4% of GDP instead of the originally reported 1.8%.
2. While this paper is being written (early July 2016), former EC president Barroso has just been hired as Goldman Sachs International's chairman to help the Wall Street firm deal with the fallout from the UK's Brexit vote (*The Guardian*, July 8th 2016).
3. Available at http://theweek.com/articles/474464/did-cause-european-debt-crisis

keep on walking on the indebtedness path? The usual explanation is the following: German and French banks in particular had bought many Greek sovereigns because they assumed that Greek debt, like any other in the Eurozone was fundamentally risk-free. Because the monetary union made the commitment to low inflation more credible[4], the introduction of the Euro in 1998-2001, strengthened by the free movement of inputs like capital – a well known provision in the so called *acquis communtaire* - determined a bias in capital markets in that it caused an excessive reduction of interest rates from Athens to Helsinki, from Lisbon to Berlin. Thus, the unique currency caused interest rates to fall even where expectations of high inflation previously kept them high, i.e. it created a framework of adverse incentives to economic agents. Indeed, a time-infinite fixed exchange rate spurs governments to ease fiscal discipline, as it provides biased signals to financial markets, hiding devaluation or redenomination risks and boosting Member States' creditworthiness (Tornell and Velasco 1995). Bond buyers assumed that a bond issued in any country of the Eurozone was equally safe. This caused the spread between long term interest rates of Greek, Italian, Spanish or Portuguese bonds to fall versus the same long term interest rates of German Bunds. This second fact constituted a further reason to ease fiscal discipline: indeed, it is intuitive that if the cost of a resource (in the case of money the interest rate) is artificially reduced, it will be wasted more easily thus causing overborrowing as a normal free riding phenomenon (Ciżkowicz et al., 2015, Feldstein, 2005). Furthermore, the adoption of the Euro delayed rather than advanced, economic reforms in the Eurozone periphery and led to the deterioration of important institutions in these countries. The abandonment of the reform process and the institutional deterioration, in turn, not only reduced their growth prospects but also fed back into financial conditions, prolonging the credit boom and delaying the response to the bubble when the speculative nature of the cycle was already evident (Fernandez-Villaverde et al. 2013).

Furthermore, the Maastricht debt criterion (i.e. the limit of 60% in the debt to GDP ratio) was not respected also by Germany and France. Indeed, France has been suffering a cumulating wage inflation difference with respect to Germany very much like Spain (J. Sapir, 2012). Secondly, Italian, Belgian and, to a minor degree, Greek debts did not increase too much after 2000. Thirdly, in 2010 Spain's public debt to GDP ratio was 61% compared to a non Eurozone country like the UK whose ratio had reached 80%. But,

Footnote 4 (from previous page): The so called Euro convergence criteria (better known as the Maastricht criteria) must be met by an European Union Member State in order to be accepted in the more restricted Eurozone club so that it can adopt the Euro as its currency. Under Article 140 of the Treaty on the Functioning of the European Union (henceforth the Treaty), the criteria to be met are the following: i) 12 months average yearly rates of harmonized inflation consumer prices (HICP) shall not exceed the HICP reference value, which is computed by the end of the last month with available data as the unweighted arithmetic average of the HICP inflation rates of the 3 EU member states with the lowest HICP inflation plus 1.5 percentage points. However, EU member states with a HICP rate significantly below the Eurozone average cannot qualify as benchmark countries (in the last 6 years Greece, Bulgaria and Cyprus were such outliers); ii) the annual general government deficit to GDP ratio at market prices, must not exceed 3% at the end of preceding fiscal year and neither for any of the two subsequent years. Deficit being "slightly above the limit" will as a standard rule not be accepted, unless it can be established that either: "1) the deficit ratio has declined substantially and continuously before reaching the level close to the 3% limit or 2) the small deficit ratio excess above the 3% limit has been caused by exceptional circumstances and has a temporary nature." If a Member State is found by the European Commission to have breached the deficit criteria, they will recommend the Council of the European Union to open up a deficit-breached Excessive Deficit Procedure (EDP) against the State in accordance with Article 126(6) of the Treaty which will be abrogated again when the State simultaneously comply with both the deficit and debt criteria; iii) the ratio of gross government debt to GDP at market prices must not exceed 60% at the end of the preceding fiscal year. Or if the government debt to GDP ratio exceeds the 60% limit, the ratio shall at least be found to have "sufficiently diminished and must be approaching the reference value at a satisfactory pace." This satisfactory pace was defined by a specific formula, with the entry into force of the new debt reduction benchmark rule in December 2011, requiring the States in breach of the 60% limit to deliver – either for the backward or the forward-looking 3-year period – an annual government debt to GDP ratio decrease of at least 5% of the part of the benchmark exceeding the 60% limit. If both the 60% and "debt reduction benchmark rule" are breached, the European Commission will finally check if the breach has been caused only by certain special exempted causes (like capital payments to common financial stability mechanisms as the European Stability Mechanism). In this case the Commission will then rule an exempted compliance. If this is not the case, the Commission will recommend the Council of the European Union to open up an EDP against a Member State in accordance with the above mentioned Article 126(6) of the Treaty which will be abrogated again when the State simultaneously comply with both the deficit and debt criteria; iv) Applicant countries should not have devalued the central rate of their euro pegged currency during the previous two years and for the same period the currency stability shall be deemed to have been stable without "severe tensions". Furthermore, participation in the exchange-rate mechanism (ERM/ERM II) under the European Monetary System (EMS) for two consecutive years is expected, though according to the Commission "exchange rate stability during a period of non-participation before entering ERM II can be taken into account." For example, Italy was deemed to have converged within only 15 months as an ERM-member, while for Cyprus, Malta and Latvia their 18 months of membership were insufficient; v) the average yields for 10 year government bonds in the past year shall be no more than 2 pct points higher than the unweighted arithmetic average of the similar 10-year government bond yields in the 3 EU Member States with lowest HICP inflation. If any of the 3 EU Member States in concern are suffering from interest rates significantly higher than the "GDP-weighted Eurozone average interest rate", and at the same time by the end of the assessment period have no complete access to the financial lending markets, then such a country will not qualify as a benchmark for the relevance value; which then only will be computed upon data fewer than 3 EU Member States (this happened to Ireland in 2012 for example). As part of the EU treaty, all of the EU Member States are obliged to adhere to the Stability and Growth Pact (SGP), which has adopted identical limits for governments budget deficit and debt. Due to the fact that several countries did not exercise a sufficient level of fiscal responsibility during the first 10 years of the Eurozone lifetime, two major SGP reforms were introduced. The First reform was the Six Pack which was followed by the Fiscal Compact signed by 25 out of the then 27-EU Member States.

unfortunately for Spain, its debt was no better rated than those of Portugal or Italy, while the UK's was considered to be safe.

All this means that there are different cases to consider even though there is a common denominator: the imbalance between core and non-core countries that is inherent in the Euro economic model (Perez-Caldentey and Vernengo, 2012). These authors argue that it was the euro and its effects on external competitiveness, that triggered ever more mounting disequilibria and debt accumulation in non-core countries.

III. SPECIFICITIES OF THE EUROZONE PUBLIC DEBT

The Eurozone public debt is not purely domestic nor purely external. Most of it is denominated in euro and held by Eurozone residents. Yet, it is different from the domestic debt of countries owning their own currencies because more of it is held outside the issuing country and because the issuing country does not have full control over the currency in which the debt is denominated. Therefore, debt in the Eurozone can be considered to be both "foreign" and "domestic" (Gianviti et al. 2010). This means that it is not subject to the currency mismatch associated with the external debt: governments have to pay their debts in the same currency they collect their revenues but they cannot use inflation to get rid of an excessive debt burden, as might be the case of a domestic government debt.

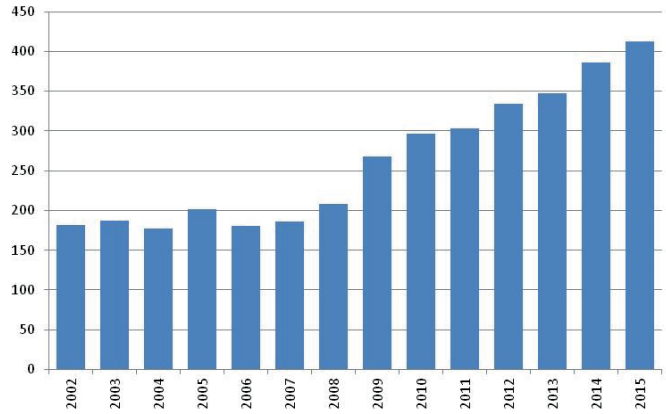
The Eurozone seemed to have no provision for sovereign debt crises and Article 125 of the Treaty on the Functioning of the European Union (TFEU) rules out the possibility of a bailout of an EU Member State by other Member States or by some EU institution. Therefore without inflation and bailout, a countries with excessive debt has 3 ways to escape the mess: 1) harmful fiscal retrenchment; 2) default inside the eurozone; 3) leaving the eurozone. Thus far, the first way has been chosen to the harm of populations.

IV. THE CASE OF IRELAND: THE ROARING YEARS AND THE CRISIS

The Irish economy enjoyed an exceptional period of sustained growth from 1994 up until 2007: in the earlier years, it was driven by the expansion of the world trade and a rapid increase in the world market share

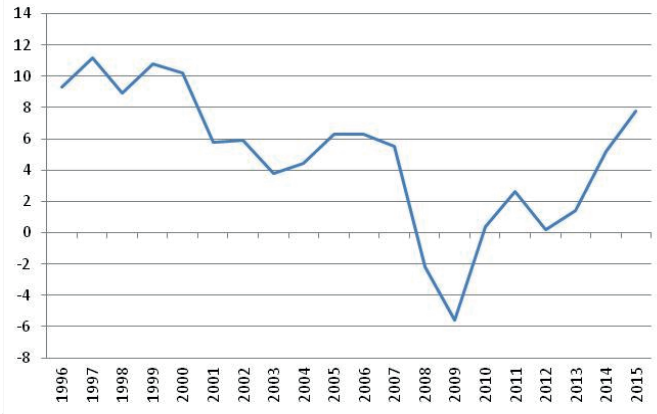
for Irish exports as a result of the competitive nature of the Irish tradable sector. This produced a strong approach to the full capacity output and a rapid increase in living standards (Bergin et al. 2011). Later, the process continued spurred particularly by Foreign Direct Investment encouraged by low corporate income tax rates (currently at 12.5%) and by the fact of being an English-speaking country (see Figure 1).

Figure 1: Irish FDI stock relative to GDP



Source: Eurostat

Figure 2: Growth in Ireland (1996-2015): yearly percentage change



Source: Eurostat

In figure 2 the Eurostat official Irish growth rates can be seen. Ever since the start of the available time series, Ireland has experienced a very

high growth with the exception of the 2008-2012 period. In the last two years high growth rates seem to have resumed their fast pace.

On account of this strong growth the Irish economy experienced a great increase in real estate prices that reached an all-time high in 2007. This was facilitated by Ireland's demographic structure that recorded an high (for a European nation) natural increase in the population in the 1990s. The largest cohort of the population in 2000 was aged 20-24. In addition, the number of retired people was low due to high emigration from the 1930s to the 1950s. Thus, Ireland entered the mid-1990s boom period under-endowed with infrastructure in the form of dwellings. The number of adults per dwelling was substantially higher than in the other EU Member States with the exception of Spain. In addition, the boom in the economy meant that many Irish emigrants returned and many immigrants came to work in Ireland, putting further pressure on public and private infrastructure. In other words, the upsurge in the building sector was a natural consequence with its pathological bubble firstly disclosing only in 2003. Of course, the bulk of the additional resources required to fuel the increase in output of the building sector had to come from other sectors of the economy, leading to a reallocation of resources within the economy (FitzGerald and Morgenroth, 2006). Wage rates were driven up across the economy by the rapid growth in labor demand in the building sector and, as a consequence, firms dependent on the export markets suffered. The building sector had started crowding out the rest of the economy.

House prices stabilized in 2008, beginning to decrease by 2008 Q3 (Environment, Heritage and Local Government, 2010).[5] As a matter of fact, by 2007, the Irish economy had already become too dangerously dependent on housing and real estate sector as a source of economic growth and tax revenue. A lightly regulated financial system fed on this process. In fact, the growing construction boom was led by the increasing reliance of Irish banks on wholesale external borrowing (particularly from Germany and

5. In 2008 the average price of a new house in Ireland was 305,269 euros, while in 2009 it had decreased to 242,033 euros, i.e. a decrease of 20.7% in a year. They had reached 313,678 euros in 2008 Q2 and had subsequently started falling by 2008 Q3 to 301,680 euros. In 2009 Q4 they had decreased to "only" 226,505 euros and stabilized in the first two quarters of 2010, hovering around 226K euros. Second-hand house prices fell as well from an all-time high reached in 2008 Q1 (359,277 euros) to 244,679 in 2009 Q4. Housing loans approved were more than halved in 2009 (by 52,1% falling to 12,585).

from 2003) at a time when international financial markets were awash with cheap investable funds sustained by the fall of nominal and real interest rates.[6] In other words, the Irish participation to the EMU and to the globalization of financial markets reduced the concern on the balance of payments disequilibria. Specific tax incentives boosted the overheated construction sector and more generally fostered non-tradable goods and services, while a tax on mortgage interest payments could have been used to raise the cost of borrowing for households, mirroring the effect of a rise in interest rates, thus controlling house prices more effectively (Barry and FitzGerald, 2001). Moreover, banks stimulated demand with loan-to-value mortgages up to 100%. The level of mortgage per capita credit increased over tenfold between 1995 and 2008 (Russell et al., 2011 Table 4.2), while the ratio of house prices to average earnings suggested clearly that mortgage levels had become unsustainable (Kelly, 2009).

When the real estate price bubble burst – very much like Spain's - the country experienced a deep banking crisis, increase in unemployment and a fall in net earnings generated from the labor market (-11.5% in the period between 2004 and 2011, see Watson and Maître 2013). The contraction in national output was unprecedented and this resulted in a fiscal crisis that obliged the country to accept a "bail out" from the EU and the IMF.

The rapid deterioration in the labor market, alongside stringent austerity measures implemented to plug the public finances had a widespread impact on peoples' lives. Public sector earnings fell significantly due to the introduction of a pension levy in 2009 and a wage cut between 3 and 15% in 2010 (O'Connell, 2012).

In the private sector, the adjustments were mostly made through job cuts rather than wage reductions. Increasing rates of largely involuntary part-time work for men and women in both the public and private sector had a depressing effect on weekly and labor market earnings (Russell et al. 2013). The mean equivalized income per individual at 2004 prices fell

6. According to the Bank for International Settlements the foreign borrowings of Irish banks had reached 110 billion euros in 2008. Much of this was borrowed on a three month rollover basis to fund building projects that would not be sold for several years. When all of those properties could not be sold anymore, a classic asset-liability mismatch followed. The banks were said to be illiquid but not insolvent by 4 billion euros, but this turned out to be a huge underestimation.

from 20,962 euros in 2008 to 19,003 euros (Callan et al. 2013, table 5).[7] Tax changes such as the introduction of the Universal Social Charge (USC) and changes to Pay-Related Social Insurance (PRSI) also reduced net earnings. During the first phase of the recession, social welfare payments were protected. The 2009 budget increased income support rates for social welfare recipients. However, the 2010 and 2011 budgets reduced the rates in most schemes for those in working age, although the payment in respect of child dependents was increased and the rates of payment for old age pensions had remained unchanged. Since 2009, the universal child benefit payment has been cut a number of times and the early childcare supplement –a cash grant of 1,000 euros payable for children under six years— was abolished in 2009. Payments to young unemployed people were cut substantially (Maître et al. 2014, p. 4). FitzGerald (2014, table 1) shows how the cumulated fiscal adjustment implemented in Ireland in the period 2008-2015 was about 19.5% of the ex ante GDP (31.8 billion euros). Overall, two thirds of this adjustment involved expenditure cuts and one third increased taxation.

Private debt problems played a more significant role than in previous recessions. Per capita credit card debt rose from 102 euros in 1996 to 707 euros in 2008 and the number of credit card issues increased dramatically during the boom period. The level of personal house indebtedness in Ireland also increased dramatically (Russell et al. 2011, Table 4.1). In 2013 Q2 (i.e. when the spread with the German bund had already started to substantially decrease, suggesting a significant reduction in country risk) 12.7% of mortgage holders were still in arrears for principle dwellings as were 20.4% of buy-to-let mortgage holders. The level of mortgage/rent arrears among Irish households was the highest in the EU at 11.6%. Only Greece came close to the level of housing arrears observed in the so-called Celtic Tiger (Irish Central Bank, 2013). Combining information on arrears in utility bills, hire purchase repayments and mortgage/rent, just less than 20% of Irish households were in arrears in at least one of these categories compared to an average 11.7% for the EU 28. Emigration – not only from foreign nationals but

7. For the sake of truth, the authors estimate that the impact of public policy would have played a mildly progressive role. The effects of changes in tax and welfare systems over the 2009-2014 period have reduced the incomes of the richest 10% of the population by 15.5%, while the decline in the incomes of the poorest 10% of the population was 12.5%. The population at risk of poverty in 2011 was 16%. Without reduced welfare transfers it would have been close to 50%. In the boom years it would have been under 30%. Of course, the resulting increase in welfare payments has contributed to the problems in the public finances.

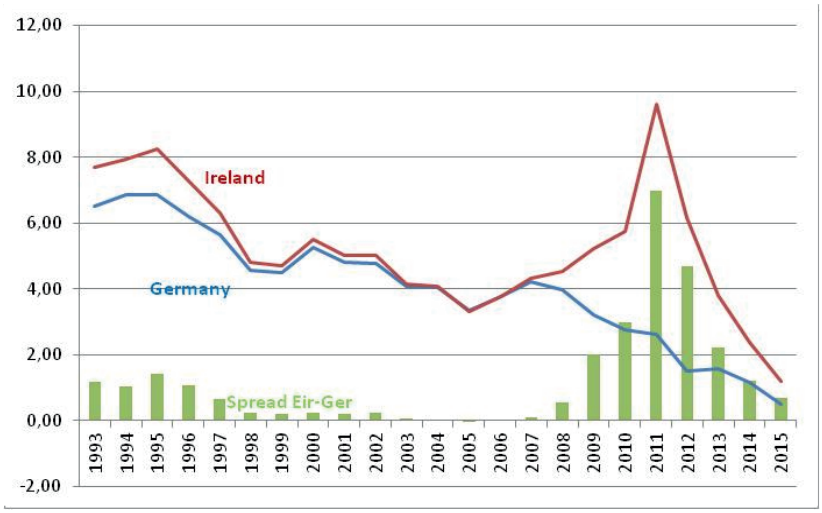
also of Irish highly skilled nationals – started increasing again. Interestingly, more people decided to go somewhere other than the US, the UK or the EU.[8]

There were also policy failures. A false sense of security lulled households and companies believing that the boom was sustainable and it also persuaded policymakers that a soft landing was likely.

The spread between the Irish and the German sovereign yields was virtually null between 1998 and 2007, a decade that can be defined the golden age of the Eurozone[9], but in 2008 they started growing again when the global economic recession struck. (see Figure 3).

This hubris was not confined to domestic policymakers: O'Leary (2010) shows that the European Commission and the IMF also failed to warn of the need for a change in domestic policy.

Figure 3: spread between Irish and German Sovereign yields (1993-2015, 10 years maturity)



Source: own calculations on IMF data

8. Emigration of skilled workers, proved long-term in nature, could have negative, permanent effects on an economy by lowering its TFP.

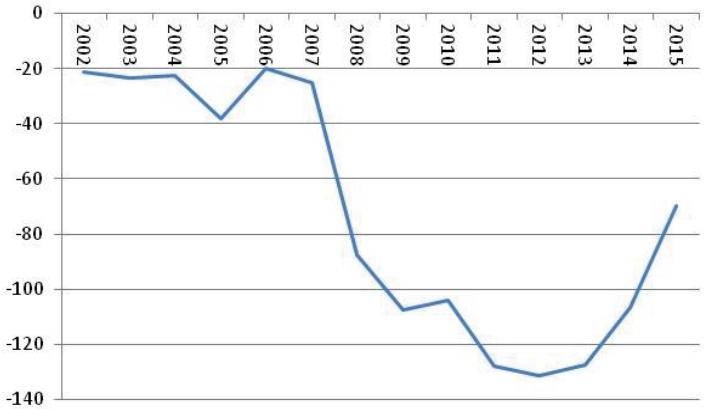
9. The Euro started circulating in 2002 but the exchange rates were fixed in late 1998.

Anyway, the policy stance by the last outgoing Irish government in drawing up the program in late 2010 was rather unusual because it aimed to under-promise only 3 months before an election (it is more usual for governments to over-promise in a run up to an election). But it also anticipated a disastrous election result and, instead of over-promising, facilitated the incoming government by putting an achievable set of fiscal targets. This approach of under-promising and over-delivering in Ireland contrasted with that of Spain. The adjustment in the Spanish public finances planned in 2010 was more ambitious than that of Ireland. The Spanish plan was aimed at reducing the deficit to 3% of GDP by 2013. In the spring of 2011, the outgoing government, raised the bar for the incoming government, committing to reduce the deficit even more rapidly in 2011 and 2012. However the latter government in spring 2012 found that this time path of adjustment was not realistic and it had to dramatically alter the plan. Because of a failure to meet more ambitious targets, the financial markets temporarily lost faith in the ability to deliver and Spanish bonds yields rose above the Irish. By contrast, in the case of Ireland, smaller but steady progress was rewarded with a steady fall in bond yields. Thus, the lesson that can be learned from these two examples is that it is better to under-promise and over-deliver.

Furthermore, the high FDIs had a worrying downside which started being evident when Ireland decided to be one of the original member of the Eurozone: the net international investment position strongly deteriorated and started improving only in the last two years (2014-2015) even though it is still well above the -35% of GDP threshold called for by the European Commission in the Macroeconomic Imbalance Procedure[10] (see Figure 4). The rapid improvement of the last two years may be also due to the fact that the BoP's current account usually gets better when there is a rapid fall in domestic investment (Ireland, Spain) as a consequence of a bubble burst than when there is a fall in domestic consumption (Greece, Portugal, Fitzgerald 2014).

10. The Macroeconomic Imbalance Procedure (MIP) aims to identify potential macroeconomic risks early on through a set of 14 indicators, prevent the emergence of harmful macroeconomic imbalances and correct the imbalances that are already in place. It is a system for monitoring economic policies and detecting potential harms to the proper functioning of the economy of a Member State, of the Economic and Monetary Union, and of the EU as a whole. The MIP scoreboard indicators cover: a) Internal imbalances from public and private indebtedness, financial and asset market developments including housing and private sector credit flow, unemployment rate; b) External imbalances and competitiveness, that may arise from the evolution of the current account and the net investment positions of the Member States, the real effective exchange rates, share of world exports and nominal unit labor cost; c) Employment indicators, like the activity rate, the long-term and youth unemployment rates.

Figure 4: Irish net international investment position on GDP (2002-2015)



Source: Eurostat

The mechanism is the following: when foreign capital enters a country, it finances its investments through two different channels: the former is indirect when an investment is carried out by a resident individual who borrows abroad; another is direct if it is implemented directly by a non resident entrepreneur through foreign savings. If a resident entrepreneur borrows abroad, his/her country gets indebted: the balance of payments records a positive capital inflow and negative interest and payments principal (the loan return) because the FDI has to be compensated. If a non resident entrepreneur decides to build a plant in the country, he surely creates income, jobs, and a profit for him/herself (quite high if the corporate income tax is low as it is the case for Ireland). This profit will be partly reinvested, partly spent in Ireland, partly returned to the entrepreneur's own country of origin. In the balance of payments, repatriated profits are passive incomes to be paid to remunerate FDI inflows. In the period 1992-2016, average capital income paid by Ireland to the rest of the world have been 32% of its GDP on average, while the other 11 founding members of the Eurozone only reached 6%, i.e. it was five times larger than the Eurozone 12 and six times larger than in the most relevant economies of the area (Germany, France, Italy). In the same period average growth rate of the Irish GDP reached 7% against an average 3% of the other members. But its income balance of payments was strongly negative (the situation worsened from 2000. Up until 1999 the Irish current account was slightly positive, see Bagnai 2012, Bergin et al. 2011 Figure 2), regardless of the strong growth, that had the debt to GDP ratio fallen impressively from 91% in 1991 to 25% in 2007.

Hence, one needs not to get insight only looking at (the worsened) public finances, even though some sort of fiscal tightness could have been carried out to slow the process in the first years of the 2000s (Barry and FitzGerald 2001).[11] As it has been showed, much of the income produced with trade went out to compensate foreign capital.

Indeed, when Ireland entered the Eurozone, its competitiveness crushed: up to 2008, the average T/T-3 change (one of the MIP indicator) in the real effective exchange rate was strongly positive (i.e. Ireland lost competitiveness) except in the year 2000 (see Figure 5).

Figure 5: Real Effective exchange Rate of Ireland 42 trading partners average T/T-3 change

Source: Eurostat

11. According to the authors, the bursting of the dotcom bubble in the early 2000s led to a slowdown of the world economy. Thus, to curb the negative effects on Irish growth, the government chose not to intervene prociclically. That slowdown was less severe than had initially expected and it effectively provided some breathing room for the Irish economy. Bergin et al. (2011) blame inappropriate fiscal policy action for the period 2001-2007 and the regulatory authority of the financial sector which did not move to defuse the growing crisis by imposing an appropriate regulatory framework on the domestic financial system. They estimate that over the period 2008-2011, the budgetary tightening, equivalent ex ante to 13% of the Irish GDP, had a cumulative ex post impact of 7.5% of GDP. While this is very severe, according to those estimates it was not as severe as the sum of the austerity budgets of 1983, 1988 and 1989 together at 10% of GDP. The reason for this is relatively straightforward, while the nominal cuts introduced in the 2008-2011 period may have well been unprecedented, in real terms their effect is more muted since prices and wages were also falling. By contrast, in the 1980s, relatively high rates of inflation meant that a nominal freeze in pay rates or welfare payments translated into a more severe real reduction.

As a matter of fact, when the crisis struck in 2007-2008, exports collapsed and foreign trade proceeds were not enough any longer to compensate foreign capital inflows: the country fell in the foreign private debt spiral above mentioned. Indeed, in the period 2000-2008 Irish REER appreciated about 40 percentage points , the trade balance fell by 13 percentage points and the current account reached the -5% threshold over GDP.

It has already said by how much property prices started collapsing and the severe losses in the domestically-owned Irish banking system owned that followed.[12] The rescue of this banking system proved to be extremely costly because when domestic banks have a high share of their business at home a collapse in a sector lead to the collapse in banks. This has proved to be an albatross around the neck to the economy.[13] A positive trade balance was regained only through a deep recession that made imports deeply fall.

5. The Irish recovery myth

But the so called Irish growth fairytale has to be more deeply scrutinized in order to understand what has happened and what is currently going on. Firstly, it started from 2013 and so far has experienced a strong decrease in the wage share (from 43% to 34% of GDP from 2008 to 2015), due to the decision of carrying out a huge internal devaluation.[14] The Central Statistical Office of Ireland (CSO, henceforth) has recently released data concerning the stunning growth of the last quarter of 2015 which outranked India and China's and ended up resulting in the best annual outturn since 2000. In mid-July 2016,

12. Two weeks after the Lehman Brothers announced it would file for Chapter 11 bankruptcy protection, the provision of a blanket system-wide state guarantee for Irish banks was announced. This measure was taken because of the drain of liquidity that had been affecting Irish banks and that had bought one important bank on the brink of failure. In April 2009, the Irish government established the National Asset Management Agency (NAMA), with the mandate to purchase at a steep average discount the universe of development-related loans from banks, above a certain value. This meant that banks required substantial upfront recapitalization programs - which could only be provided by the State - and led to a huge increase in gross government debt and deficit (Beker, 2013, Bagnai 2012). Finally, the Irish government had to request the assistance mentioned in the article from the EU and IMF in November 2010 to avoid default on its public debt which had increased in five years from 42.4% to 120% of its GDP.

13. The rapid recovery of Baltic countries can indeed be explained by the fact that their banking system is almost entirely foreign-owned.

14. The wage share of Hungary that did not join the Eurozone remained quite stable: in 2008 it was 44% of GDP, while in 2015 it was only two pp below (42%). In point of fact an external devaluation is helpful to net exports and does not negatively affect wages (Atish et al., IMF 2014).

it revised up growth for 2015 from 7.8 to 26.3% in front of a gobsmacked audience.[15] As The Economist puts it, in modern history only poor countries experiencing natural resource booms or the end of wars have grown faster.

Secondly, it did almost nothing to job creation (only 5,000 jobs were added) while employment is still 9 percentage points below the peak reached at the start of 2008. A total of 44,100 net new jobs were created in 2015, while the employment to population ratio still stands at less than 64%, ten points below the UK's. Some wage pressures are starting to emerge but only in some highly skilled segments of the market, where supply is strongly tight. Once again, construction remains the fastest growing sector of employment but still remains some 54 percentage points below its 2006 peak. The weird thing is that good exports were valued at 111 billion Euros based on customs data but 144 billion in the Balance of Payments data – a jump of 28%. Apart from adjustments for double counting, the bulk of the upsurge relates to the booking of foreign manufacturing, in Ireland for tax avoidance purposes – this activity called contract manufacturing.

The Chemicals plus Medical devices sector, which accounts for 58% of the 111 billion Euros total, added about 2,000 jobs in a ten year period (2005-2014) while in 2015, the indigenous-dominated Food and Beverages sector had a low single digit performance with a surplus rise of 4%, despite positive currency developments during much of the year, compared with the overall goods trade surplus rising from 43 to 65 billion Euros, a jump of 51%.

In terms of employment, the indigenous sector is much more job-intensive and of course much less export-oriented than the foreign sector. This simply means that the rise in the overall goods trade surplus is not a significant jobs engine for the Irish economy and provides a sort of "leprechaun's gold" for the typical Irish citizen which is reflected in an Irish per capita standard of living[16] below Italy's and a very high hidden underemployment (Henningan, 2015, IMF, 2013).

During the recession the rising headline data was useful in promoting confidence overseas as it gave an impression to journalists and investors that

15. Eurostat has not validated this data yet. Thus, Figure 2 graphs old 2015 data.

16. This is computed by Eurostat as actual individual consumption (AIC) expressed in Purchasing Power Standards (PPS).

Ireland had switched focus from property and was achieving rising real exports, particularly in computer service. But as independent think tanks show (among which Financial Facts of Ireland and William Fry Law) about half of the 250 billion Euros worth of exports are totally inexistent, comprising about 60 billion Euros related to the Double Irish tax dodge used by companies such as Google, Microsoft, Oracle, Facebook, the above mentioned contract manufacturing, the treatment of aircraft purchases by aircraft leasing companies based in Ireland, even though most of those airplanes never visit the country (FitzGerald, 2015) and the excess profits of foreign-owned manufacturers. But these phony figures cannot be avoided in a sense. The change stems from a Europe-wide shift in the way investment is treated in GDP statistics.[17] When a company executes a tax inversion, registering in Ireland to benefit from its low corporate tax rate, it and its intellectual property are now added to the country's capital stock, while returns are included in the GDP. Ireland's capital stock has indeed increased by one third in 2015, as American firms rushed to pull off tax inversion in anticipation of a likely crackdown.

It is well known, figures of GNP (value added accrued to resident factors) for Ireland are quite distant from those of GDP and about 20% lower. In 2015 the value of GNP was 85% of GDP. But the trend in recent years of those mainly large American companies moving their headquarters and tax residency to Ireland is negating the reliability of even the GNP as a metric while the Balance of Payments data are also polluted.[18] In point of fact, if the impact of aircraft purchases and redomiciled PLCs are taken into account, the recent jump in Irish trade surplus turns out to be a small deficit (0.3% of GNP) even in 2014 (CSO, 2015). Moreover, in 2015, two big US so-called tax inversions – Medtronic and the takeover of Botox-maker Allergan by Actavis – boosted Irish GNP but the CSO does not disclose the total impact of these tax avoidance moves on the national accounts. In 2016

17. The introduction of the European system of national and regional accounts (ESA 2010) has been a major event for the EU Member States. The most notable change to national accounts indicators was the treatment of expenditure on research and development which is now recorded as gross fixed capital formation rather than intermediate consumption (i.e it is capitalized). This change has revised EU-28 (UK included) 2010 GDP by 1.86%. The second most important change was the inclusion of the expenditure on weapon systems which accrued 0.17% to the 2010 EU-28 GDP. The Member States also took the opportunity to rebenchmark their national accounts, review their data sources and introduce new or improved once (see. Dunn, 2015).

18. This also messes up productivity data, unit labor costs, and distorts science and technology indicators.

Pfizer, the US drug giant, is likely to become Irish for tax purposes so that another boost in GNP is expected.

Finally, mergers and acquisitions (M&As) were vibrant in 2015, with a significant rise in deal values from 43.5 billion Euros in 2014 to 189 billion in 2015, although there was a drop in deal volume from 120 to 104. One national accountant can soon get the knack of M&As worth 189 billion with a GDP at 204 billion.

VI. WHAT CAN BE LEARNED FROM THE IRISH EXPERIENCE

Overall, the so called Irish fairytale has many weaknesses and fictions. Indeed it is not enough to take a glance at growth rate figures but it is always useful to understand why a country grows, because its capacity to fulfill its financial commitments is relevant. When growth is financed by foreign capital, it turns out to be intrinsically fragile. In my view the Irish story teaches us six more things:

1) It resembles the destiny of many other advanced and emerging countries which have collapsed due to an unsustainable foreign debt, at a time when public debt to GDP was often negligible (in the case of the Eurozone this is particularly true for Ireland and Spain).

2) FDIs are surely difficult to shut down or dislocate (the so called reversal with sudden stop is a typical feature of the portfolio investments) but they may be a weight for a country and for a long time due to mandatory compensation. Indeed the average 2002-2007 negative capital income that Ireland had to pay to remunerate FDIs reached -15% of its GDP. An enormous figure, exceeded only by that of the Democratic Republic of Congo (-23%).

3) A strong currency as the Euro is not always useful to an economy and does not prevent it from the possibility of fire sales of its firms because their value is given by their expected profits and if an overvalued currency restricts profits more than it does with costs, firms get devalued. In the last couple of years Ireland's figures have been helped by the new European statistical rules and by American enterprises becoming Irish but the divide between GDP and GNP from a side and the median Irish standard of living is evident.

4) Even though the outgoing government acted well back in 2010, the idea that a strong money can defend a nation (even if it is small, open and trades mostly outside the Eurozone as it is the case for Ireland) is a direct expression of a short-sighted nationalism just as that of Churchill when he defended the monetary fetish of one sterling for 4.86 dollars, doomed to fail anyway after blowing the British economy to pieces (Keynes, 1925).

5) Over borrowing contributed to push traditional low-TFP sectors like real estate in Ireland and rest of the periphery. From an efficiency point of view this is harmful for long term growth.

6) From a welfare point of view austerity measures are never successful for the people, with scars also hurting in the long term.

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