

# PAGE

policy analysis on growth and employment



## The Impact of Wage Policy on poverty, informality and growth

RESEARCH PROPOSAL

Presented to

### Partnership for Economic Policy (PEP)

By Ciess-Econométrica and the Economics Research Institute of UMSA<sup>1</sup>

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**BOLIVIA**

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## Before you begin

Please consult the following webpages/documents regarding PEP's expectations in terms of:

- [Specific policy issues to be addressed by projects supported under the PAGE programme](#)
- [Scientific content of eligible research project proposals](#)
- [Initiatives to be undertaken by PEP supported research teams in terms of policy outreach](#)

Please note that :

- projects involving data collection will not be considered/selected under this final (3<sup>rd</sup>) PAGE round, with the exception of those selected under the "special call for field experiments"
- plagiarism is strictly forbidden – see note on "references and plagiarism" at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.

PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish (and will be accepted given proper justification of language barrier).

## 1. Abstract (100 to 250 words)

The abstract should state the main research question, the context and its relevance in terms of policy issues/needs in relation to PAGE thematic foci, complete with a brief description of the data that will be used.

The objective of this research project is to design an optimal wage policy capable of reducing poverty and fostering growth, inside a context of high informality and natural resource dependence. From dimensions like the intensity of employment and informality, employment mediates between poverty and growth, chiefly in vulnerable sectors of the population: young people and women. During the last ten years, the minimum wage in Bolivia has quadrupled. Besides other benefits were imposed, for example 14th salary. In the same period, export revenues hydrocarbons and minerals led to the appreciation of the real exchange rate which is the gateway to the pernicious effects of the Dutch disease. The methodological approach is based on developing a dynamic CGE model and the construction of a SAM matrix for the year 2012. The two consider labor by gender, formal and informal status and skills. The model will be complemented with microsimulations based on Household Surveys. This scheme allows analyzing the impact of the wage policy on poverty and growth in two contexts: the continuing boom in commodity exports and the fall in international prices of oil and minerals.

## 2. Main research questions and contributions

Explain the focus (or key questions) of your research and its policy relevance.

- 2.1. Explain why you think this is an interesting research question and what the potential value added of your work might be (knowledge gaps). You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what do you wish to achieve (in addition) by examining the question again?

The effects of wage policy can be classified into two groups: impacts on redistribution (poverty)

and impacts on efficiency (economic growth).

Main question:

What is the impact of wage policy on poverty and growth? Is there a trade-off between those policy objectives?

Impacts on efficiency:

What is the impact of wage policy on the migration of informal workers to formal sector by gender, age and level of training?

Impacts of wage policy on redistribution:

What is the effect of wage policy on employment?

What is the impact of wage policy on the incomes of the poor? What about extreme poverty?

What is the impact of wage policy on income inequality?

What is the effect of wage policy on the intensity of employment by gender and level of training?

What is its impact on the incorporation of unpaid workers to the labor market?

All of the above are mediated through changes in the composition of employment (informality, gender, skill, unemployment) and through indirect changes in the demand for goods and services.

The stated questions will be answered in the frame of an ex-ante analysis. The CGE will have 2012 as the base year and the simulated scenarios will present different paths for wage policy and export/import prices. The outcomes from the CGE model will serve to develop an appropriate wage policy focused not in the reduction of informality per se, but in promoting growth and eliminating poverty. The proposed policy will take into account its impact on aggregate variables and changes captured in the microsimulation.

The poverty reduction and, moreover, the elimination of extreme poverty are important objectives for developing countries. The current government considers that wage policy and, in particular, the increase in the minimum wage is a good way to eradicate poverty (Evo Morales, 2014). Under that banner, in the last ten years the minimum wage has been quadrupled, from Bs. 440 to Bs. 1656, which in real terms means an increase of 104%. In the same period, the Government imposed other benefits to formal workers, such as extending the indemnity period, which means the obligation to pay a salary for each year of work in case of dismissal. In an unprecedented way in the region, since 2013 employers in Bolivia have the obligation to pay the “doble aguinaldo” (a fourteenth salary) in the month of December each year if GDP growth exceeds 4.5%. A quasi firing freeze that can only be overcome. Nevertheless, that wage policy is unfounded given that at the moment no one knows the mechanisms through which especially the minimum wage alters the magnitude and intensity of poverty.

Before inquiring about the effects of wage policy in the informal sector and, as a consequence, in the poverty levels, we must adopt and adapt a definition of informality suitable for Bolivia, i.e. a

legalistic definition. The ILO defines informality as “[...] broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. Labor relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees” (ILO 2013). The definition involves two parts. The first one relates to the form of organization and productivity. The second part remarks the lack of contractual agreements and represents the legalistic definition of informality.

In keeping with the ILO legalistic definition of informal employment, we have 4 types of informal jobs, a similar classification is in XXX. The first one relates to the “the family workers” and the “self-employed workers who produce goods for final consumption by home”. Those workers make together what we called the Type 1 informals: unremunerated family workers. The second one is a typical informal job in Bolivia and is part of the informal waged employment: domestic servants are the Type 2. The third type puts together the self-employed workers and the owners of small firms without a fixed remuneration and lack of social security or a contract. Finally, Type 4 is integrated by workers, white-collar employees and small firm owners without social security affiliation or contract.

The minimum wage increase is defined by the government once a year. One could argue that wage legislation has no effect on a country characterized by informality on the labor market. Nevertheless, it can also be argued that the minimum wage legislation affects the informal sector due to the Lighthouse Effect, which explains wage movements in Brazil (Neri, Gonzaga and Camargo, 2001) and also in several Latin-American countries (Kristensen and Cunningham, 2006). Also, the CGE approach captures the indirect benefits in aggregated demand of a hike in salaries from one sector of the economy to another. To date, there are no research studies about the direct and indirect effects of the new wage policy pursued by the government in Bolivia on labor informality, the intensity of employment and poverty. Moreover, the effects of minimum wages on poverty are studied only recently. (Fields and Kanbur, 2007).

In the same decade that changed the wage policy, the primary export boom led to the appreciation of the real exchange rate and led to the specific effects of the Dutch disease in countries with structural restrictions on the level of productivity: reduced GDP/Total supply ratio, increasing savings without counterpart in investment and shifting of resources to non-tradables (Morales, 2012). Probably the impact of wage policy in a context of prosperity is very different from the impact in the event of rapid decline in export earnings.

Research on the informal sector in Bolivia is oriented to describe some of its features: absence of returns to scale (Andersen and Muriel, 2007), experience and education as determinants of the wage gap between informal and formal workers (Monsted, 2000), migrants from rural areas and indigenous as the core of informality (Morales, 2008), labor market segmentation in the lower quintiles, while in the higher quintiles workers have the ability to choose between formality and informality (Tannuri-Pianto, 2004) . This research will fill the gap in knowledge on the relationship between wage policy and the volume of informal employment of three types: self-employed, salaried informal and unpaid workers. The analysis of this issue is even more relevant as there is an intersection between poverty and informality in the lower income quintiles. Furthermore, unpaid

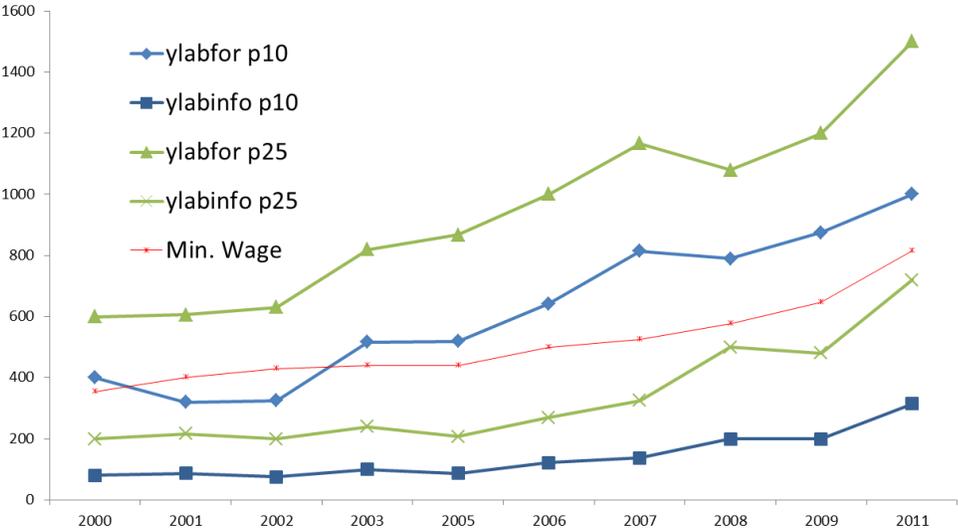
work mostly involve young and female. A measure of economic empowerment of women is the proportion of women in the category of unpaid work (Montaño, 2011)

**Lighthouse effect in Bolivia**

Due to the lack of empirical studies focused in Bolivia’s informal labor market and the wage legislation, and much less the impact of minimum wage on the informal segment, there is an urgent need of scientific enquiry in this area.

For the development of this proposal and as a preliminary study, we have found that 10% of people living in poverty (i.e. people living with income equal or less than the poverty line) also have earnings around de minimum wage in the year 2006 (+- 5% of Bs. 500), which is the period of time when our CGE model will start. In contrast to the developed countries, from that 10% mentioned above, only 7% are under 18 years old and 61% are heads of family. Among those, 11% are single mothers. Nevertheless, in the general population, 13% of households are formed by single mothers and most of them earn less than the minimum wage. Also, the indigenous population is slightly more represented around minimum wage earners than the population with income above the minimum wage, 52% vs 45%. Those differences are statistically significant.

Figure 1 Formal and informal income for the 10 and 25 percentile and minimum wage



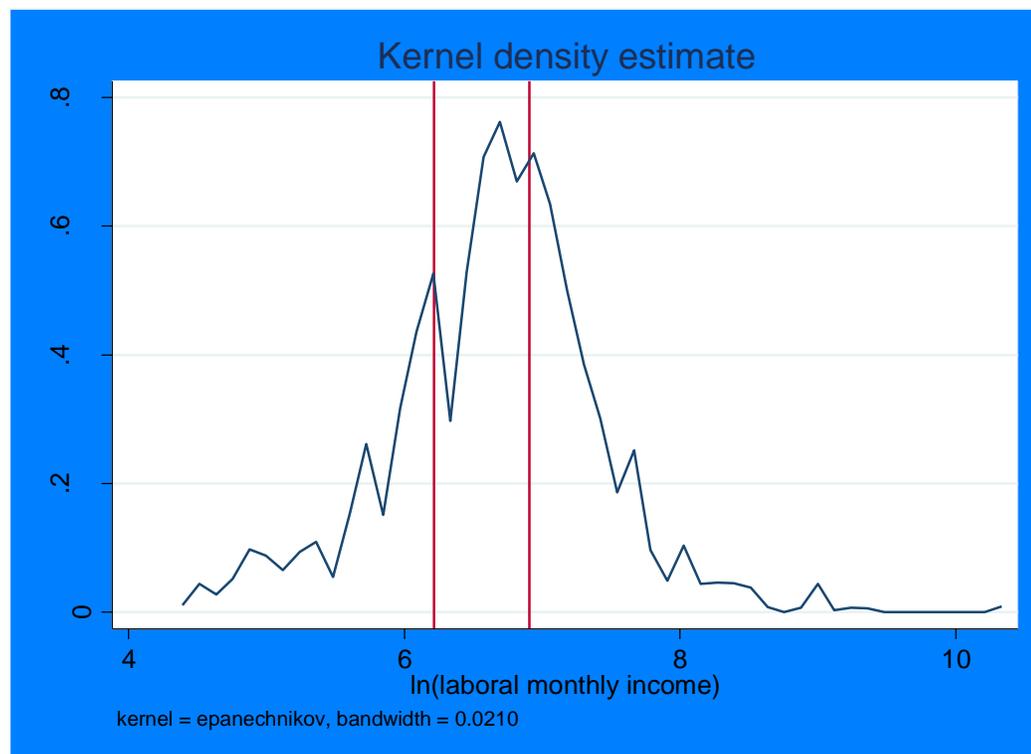
From 1989 to 2011, we found that the Pearson correlation between minimum wages and the mean earnings of the informal sector is equal to 0.87. Moreover, there is a 0.98 correlation between minimum wages and the mean wages of the Type 4 informality. Certainly, correlation doesn’t imply causation and these findings are only hints about the nature of the association between wage policy and the level of wages. The earnings increase in the informal segment could also be in part an indirect effect of the wage policy or just the consequence of high export prices.

The data, although short in time span, suggest cointegration between informal income and formal income receivers for the low 10 percentile and 25 percentile in the income distribution. Moreover, there is also cointegration between the minimum wage and the 25 percentile, but not for the 10 percentile. This kind of association could be translated into a lighthouse effect limited for bracket of income.

As a descriptive methodology we use the kernel density of the natural logarithm of income in order to detect the effects of minimum wage policy (Glinding and Terrel 2005). Below we provide the kernel density distribution for the years 2006 (base year of the CGE model 2006) and 2011 (the last year with an available household survey). If the minimum wage has an impact over the distribution of wages, we can assume that there is a link between minimum wage policy and the level of wages around the minimum wage. The link will be shown as a “peak” around the minimum wage or its multiplies. Thus, the wages are not distributed randomly or according to the marginal productivity of labor. There must be something disturbing the wage distribution and causing a concentration or compression of wages in that point (Nicolai Kristensen, Wendy Cunninghaml, 2006).

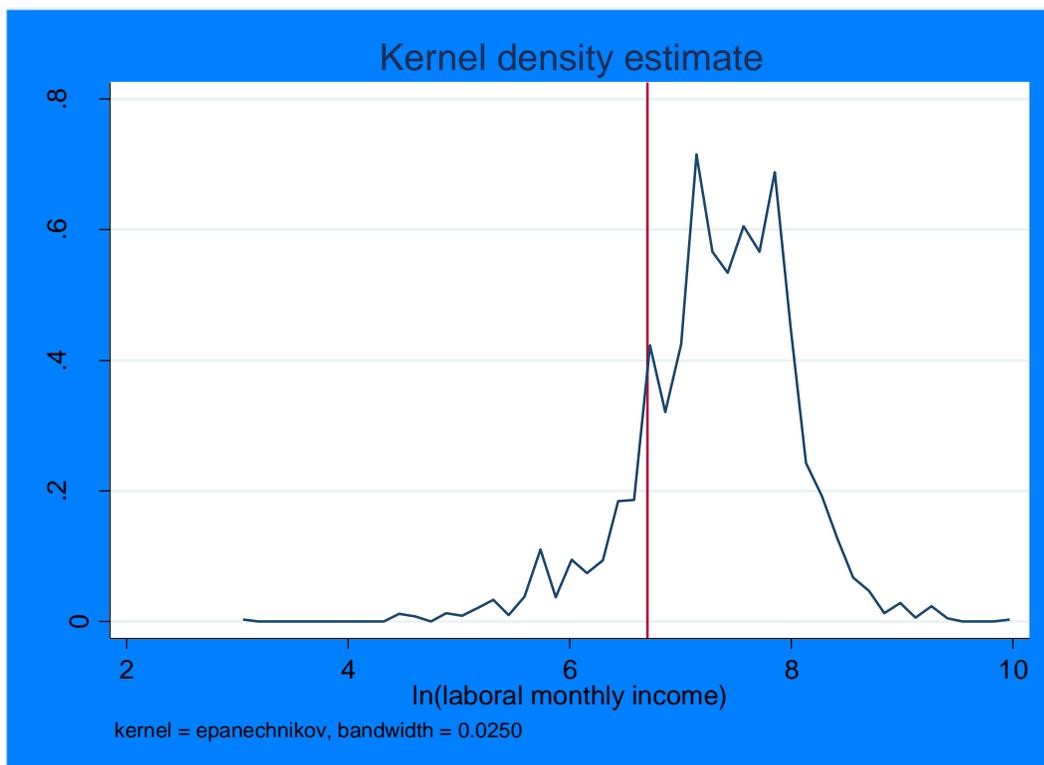
Also, the minimum wage might have an impact over different parts of the wage distribution: there could be a numeraire effect. In such a case, the “peaks” in the kernel density function arise in wage levels equal to multiples of the minimum wage. Below we present the kernel distribution function of wages for type 4 informal persons (laborers, employees or small enterprise owners without a formal contract or social security coverage)

Figure 2 Kernel density for the income of type 4 informal labor, 2006



According to the graph, the minimum wage has an impact over the wage distribution in Type 4 because there is a “peak” (high concentration) at the minimum wage level, as is illustrated with the first vertical line from the left. Furthermore, another slightly less marked “peak” is present at the level of twice the minimum wage. This feature could be due to the existence of an effect numeraire.

Figure 3 Kernel density for type 4 informal workers, 2011



In the year 2011, the kernel density distribution represented above for the wages of Type 4 informality shows a “peak” at the level of the minimum wage. Nevertheless, for the year 2011 there is no effect numeraire.

From the correlations and the kernel densities we could conclude as a first approximation that a “lighthouse effect” is present from the minimum wage policy to the informal labor market, specifically the waged informal sector. We haven’t found evidence on a link between the minimum wage and the self-employed (the Type 3), These findings are similar to those presented for Costa Rica (Glinding and Terrel, 2005), where there is a positive association between the minimum wage and income of informal waged workers.

- 2.2. Describe the specific policy issues/needs that your research aims to address; how your potential outcomes/findings may be used in policy making?–Justify timing of your research in terms of policy and socioeconomic needs/context – e.g. reference to existing/planned/potential policies at the national level.
- Evidence of previous consultation with potential users (e.g. policymakers and key stakeholders) to help define your research question is strongly encouraged. Include a list of names, institutions and email addresses when possible.

The changes in wage policy represent a break with the treatment given to labor since the structural adjustment program in the 80s, a decade when labor flexibility was imposed (A. Aguirre, 1992). We will try to establish if wage policy is a suitable instrument to reduce poverty and if doesn’t hinder growth. The wage increase in the last decade has always been above the variation in the price level. For example, the minimum wage has increased in real terms by 104%. The underlying reason for this policy is to ensure a fair and sufficient wage to ensure the subsistence of the worker and his family, so that poverty and inequality will be moderated.

As noted in the section on methodology, the research will use a model of dynamic CGE linked with microsimulations. Within this framework it is planned to evaluate first the wage policy in the 2005 – 2012 period and then propose a wage policy. A wage policy evaluation is timely since the Minister of Labor Jose Trigoso will present in the next few weeks a new Labor Law draft. The current law was developed in 1939 and there is a “historic necessity” to present a new code.

In Bolivia, the National Chamber of Commerce (NCC) has expressed several times the need to have the employers negotiate and agree on labor codes. Nevertheless, the government proposed draft has been redacted by public officials and workers representatives, without the employers input and their voice needs to be heard, according to the NCC’s Executive Director Javier Hinojosa in a meeting with him.

Our goal is to give empirical support to the formation of wage policy from a

comprehensive framework: CGE and microsimulation. The University of San Andrés and Ciess-econométrica have a written agreement aiming to develop scientific research and to promote positive change in society. This initiative comes from students and university professors, among them are current and past high authorities like the Luis Arce (Minister of Economics), Veronica Ramos (Minister of Agricultural Development), Roberto Aguilar Gomez (Minister of Education) and the recently deceased Carlos Villegas (President of YPF, the largest corporation in Bolivia). All of them are part of the economics department in San Andrés. With their help we will reach out to the government sphere.

The Vice Presidency has created a Political Formation School called “Generación-Evo”. Two of the junior members in our team are part of it. Generación-Evo sustains a workshop every week and has full support from the Vice President Alvaro Garcia Linera. We plan to use the Generación-Evo’s platform to interact with political representatives and ideologues from the government.

The assembled research group is compromised with the “open knowledge” movement. In that regard, the main document will be supplemented with extensive appendices where the reader can find a detailed and pedagogical description of the SAM adjustment, the model calibration, the microsimulation and a link to the used data, hosted in the server of CIESS-Econometrica and the University of San Andrés.

Also, currently there is no entity in charge of preparing the SAM for Bolivia with adequate frequency, much less to extent the SAM into a System of Socio-economic Accounts (Keuning, S. J., & Ruuter, 1988) where not only current transfers can be represented, but also demographic information and stocks of natural gas and soil degradation, among others. This research will form a stepping stone for the University of San Andrés to continue the elaboration and extension of the SAM by putting in charge the Economic Research Institute.

In order to prepare this research proposal and to define the research questions relevant to the needs of social policy talks were held with the following economists:

Name	Title	Institution	Email
Juan Antonio Morales	Professor	Universidad Católica Boliviana (program Harvard)	<a href="mailto:amorales@mpd.ucb.edu.bo">amorales@mpd.ucb.edu.bo</a>
Elizabeth Ximenez	Subdirectora de Investigación	Departamento de Postgrado en Ciencias del Desarrollo de la Universidad Mayor de San Andrés (CIDES-UMSA)	<a href="mailto:ejimenezamora@gmail.com">ejimenezamora@gmail.com</a>
Luis Arce	Minister of Economy and	Ministry of Economy and	<a href="mailto:luchoarce@hotmail.com">luchoarce@hotmail.com</a>

	Finance	Finance	
Javier Hinojosa	Executive Director	National Chamber of Commerce	<a href="mailto:jhinojosa@cnc.bo">jhinojosa@cnc.bo</a>

### 3. Methodology

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so. Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so. Explain if these methods have already been used in the context you are interested in (including key references).

The study of the relationship between formal wages and informal wages in the view of the lighthouse effect is new. But first is necessary to describe the general framework. The particular model from which the research will be based is the single country, recursive dynamic version of the Partnership for Economic Policy (PEP) model developed Decaluwé et. al. (2010). The research will insert various adjustments in this model to achieve the objectives. First, the model must be adjusted to consider the existence of a formal and an informal labor markets.

**Table 1: Share of Economically Active Population by formality and type of informality, 2011**

Share of Economically Active Population		
Formal	26.08	
Informal	Type 1	22.44
	Type 2	2.57
	Type 3	31.6
	Type 4	17.3
Total	100	

The household survey in Bolivia allows us to first classify labor into 4 informal categories, and 1 global waged formal category, which could be disaggregated in some other 4 formal categories. We have prepared a glance in the table above for the year 2011. In the preparation of the SAM we will disaggregate those categories into skill and gender. It's paramount to avoid the management of an excessive number of labor categories. Therefore, the sub classification will be conducted only when it's relevant. For example, a good assumption is to consider Type 2 informality as composed of unskilled women. Even so, there is no need to define a Type 2 formality because there are practically none household servants subject to the labor legislation. Type 1 don't receive a wage and don't participate in the labor market directly, therefore they are not part of the model equations.

The analysis should take into account the existence of this group (Type 1) of people who are usually young women<sup>2</sup>. Together with the inactive population in age of working, the Type 1 constitutes a pool from which the labor supply can change.

<sup>2</sup> In 2011, 67% of unpaid workers in urban áreas were women.

Thus, the number of labor categories and its description is as follows.

- Formal waged workers: male, female
- Type 2: informal female
- Type 3: informal male, informal female, formal male, formal female
- Type 4: informal male, informal female, formal male, formal female

As a result, we have 11 types of labor. From the demand side of labor it will be possible to consider the intensity of employment, especially for youth and women with low education.

The labor market is inspired from the Mincer 1978 scheme: market clearance in the formal sector doesn't happen due to the minimum wage and displaced formal workers will turn to the informal sector and reduce the earnings. In the proposed model, market clearance in the first period will follow a free market mechanism for the formal and informal workers separately. For the next periods the formal real wage rate will be fixed, the informal wage rate will follow the formal wage rate through a constant elasticity and the unemployment will be adjusted as to result in market equilibrium. Of course, in the first period, the unemployment will be absent; this reflects the actual level of unemployment nowadays: 2.9 %.

The mobility between formal and informal categories is, in the short run, nonexistent. This is due to the fact of mobility as a variable dependent of education, which is a stock hard to modify. Nevertheless, the mobility from the inactive population and the unremunerated workers to the labor market depends on the minimum wage rate on the formal sector, which determines a lighthouse-effect-minimum-wage in the informal sector.

$$LABMOV = f(PseudoMinimumWage_{informal}, MobilityElasticity)$$
$$PseudoMinimumWage_{informal} = g(MinimumWage_{formal}, WageElasticity)$$

Last, the 14th salary or as is called the “Double Christmas bonus” will be added as a transfer from firms to the households according to their participation in Type 4 formal labor. This transfer will be applied only when the GDP growth of one lagged period is more than 4.5%.

The microsimulation will follow an arithmetic scheme: the results from the household income in the final period of simulation (year 2020) will move the distribution of income and therefore change the level of poverty.

The model will take the exchange rate as the numeraire. Investment will be adjusted to savings with a roof equivalent to 20% of the GDP, the reason behind that restriction is the historical behavior of total investment in Bolivia. From 2006 savings have climbed and domestic investment has remained well below savings meanwhile foreign investment has been relatively absent and concentrated in natural resource extraction. This particular investment behavior will be incorporated within the framework of the PEP-1-t model. The dynamic component will be represented by variations in capital stock and labor supply.

## **Simulation**

The first simulation scenario in the ex-ante analysis relates to the continuation of the observed wage policy: wage hikes around the level of past inflation, 14<sup>th</sup> salary in case the GDP grows above 4.5% and special treatment to education workers in the form of salary bonus. All of that is formalized as a fixed real wage for formal workers, a transfer from firms to households in the period after a GDP volume variation above 4.5% and a transfer from the government to health and education workers. The wage rate in the informal sector follows the path of the wage rate in the formal sector through an elasticity calculated from the household survey data. The mobility between unpaid workers and inactive workers in age of working to the labor market depends on the minimum wage and the wage ratio in the formal market, as is described above.

Another possible scenario is to follow the proposals of the Central Workers Union (COB). They demand wages to be indexed to inflation plus the rate of GDP growth. Another demand is the payment of the fourteenth wage to be independent of the growth of the economy. This translates to fix the real formal wage and to make a transfer from the firms to the household equivalent to the formal wage bill multiplied by the growth of the GDP from a period before.

Finally, a third scenario in wage policy is the suppression of government intervention. This means no minimum wage, no 14<sup>th</sup> salary, no bonus for health and education workers.

All of the above policy paths have to be simulated in two opposite contexts: a hike and a drop in export prices.

#### 4. Data requirements and sources

This is a critical part of the proposal. The key issue is to explain the reason for the use of the particular data. You must establish that they are ideal for the question you wish to address. Please consult the "[Guide for designing a research project proposals](#)" for more detail.

The adjustment described in the section above requires a SAM that takes into consideration the distinction between formal and informal activities and commodities, self-consumption activities, skilled/unskilled labor and gender distinction. The main office responsible of economic policy in Bolivia (UDAPE) has elaborated a SAM for the year 2006 with part of those characteristics. However the SAM for the year 2006 does not cover unpaid workers, labor by gender nor the distinction of types of informality. This study requires us to construct two SAMs, one for the ex-post analysis based on 2005 and another one for the ex-ante part based on 2012.

The mentioned SAM suffers from several problems. One of the problems is the share of income destined to social security: in some cases goes to more than 50% of the income. Part of the proposed scientific contribution will be not only the adjustment of the matrix, but mainly its modification and the consequent debate around the quality of data in Bolivia.

In order to construct the SAMs the project will use information from the National Institute of Statistics (INE) and the Central Bank of Bolivia through:

- ❖ Household Surveys: the years 2006, 2007, 2008, 2009 and 2011 have all of them household surveys. It is quite possible that the survey for 2012 will be released in the next few

months. In that case the proposed inquiry will take into account the year 2012 as well.

❖ National Accounts

- Institutional Sector Accounts:
  - Public Administration Accounts
  - Households and Private non-financial corporations Accounts
- Input-output Matrices
- Production Matrices
- Gross Fixed Capital Formation Matrices
- Transaction Matrices

Ideally we would separate firms into formal and informal, but due to the absence of accounting in informal firms and the data reliability in matters of household enterprises we represent the firms with only one SAM account.

**2011 SAM construction**

Until March 2015, household survey data was available only up to 2011. Making use of that information we have elaborated a SAM for the year 2011. Here we present the Macro SAM version:

	act (13)	c (13)	fac (5)	inst (6)	tax (4)	row	s-i	dstk	Total
act (13)		182							182
c (13)	82			87		49	19	1	239
fac (5)	78					0			78
inst (6)			78	19	27	19			142
tax (4)	22			5					27
row		56	0	3			9		69
s-i				29					29
dstk							1		1
<b>Total</b>	<b>182</b>	<b>239</b>	<b>78</b>	<b>142</b>	<b>27</b>	<b>69</b>	<b>29</b>	<b>1</b>	<b>767</b>

GDP	GDP
ING	DD
100	100

This SAM is in terms of GDP=100. Having already prepared a SAM we feel confident to extend the number and types of accounts with the purpose of feeding the CGE adjusted model. The complete version is in this [dropbox link](#).

*Note about the bibliographical advice: from the PEP first round we have received numerous bibliographical sources with relevant information about our subject. Nevertheless, we were not able to access those documents because they were behind paywalls from institutions not linked by the public university of San Andrés or the Ministry of Economy.*

**5. Policy influence plan (or research communication strategy)**

- Referring to the policy context described in section 2.1., identify potential users of your research findings, including policymakers and other key stakeholders. Provide a list of institutions and, whenever possible, specific individuals to be targeted for effective policy influence. Please also indicate whether you have already made contacts within the institutions
- How, in the elaboration and execution of your project (from design to dissemination), will you consult/communicate with these users to both gather their inputs and keep them informed of your project (expected contributions and uses), in order to increase chances of your findings to be taken-up into policymaking?

You can refer to [PEP's research communications strategy and guidance](#) to have a better idea of what is expected in terms of activities for policy outreach and dissemination.

The communication strategy has as the main activity the organization of a National Wage Policy Conference. In that regard, we have identified people in positions of influence or decision:

Nº	Name	Lastname	Institution	Position	Nature of the institution	Address	Email
1	Gabriel	Loza	Ministry of Planification	Former Minister	Ministry of Planification		engabolo@hotmail.com
2	Graciela	Toro	Ministry of Planification	Former Minister	Ministry of Planification	Urb. Terra Maria Achur	gracielatoroibanez@hotmail.com
3	Rodolfo	Eróstegui	Ministry of Development	Former Minister	Ministry of Development	PEDIR POR MAIL LUE	rerostegui@gmail.com
4	Roberto	Ballesteros	Ministry of Labor	Advisor	Ministry of Labor	PEDIR POR MAIL LUE	robaco@bolivia.com
5	Elizabeth	Jimenez	CIDES	Director	Postgraduate public program	Avenida 14 de septiem	ejimenez@cides.edu.bo
6	Beatriz	Muriel	INESAD	Academic chair	Research institute	Av. Héctor Ormachea	bmuriel@inesad.edu.bo
7	Osvaldo	Nina	INESAD	Researcher	Research institute	Av. Héctor Ormachea	onina@grupointegral.bo
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13	Gover	Barja	MPD - UCB	Proffesor	Postgraduate private program	Av. 14 de Septiembre N	gbarja@mpd.ucb.edu.bo
14	Fernando	Landa	UDAPE	Researcher	Official research institute	Av. Mcal. Santa Cruz E	flanda@udape.gob.bo
15	Marcelo	Montenegro	UMSA	Proffesor	Public univesity	Av. Villazón y Av. J.J.Pérez s/n.	
16	Luis	Castro	UPB	Proffesor	Private university	Mallasa - Achocalla Kr	luiscastro@tp.upb.edu
17	Eduardo	Pando	GERENSSA	Director	Private consultant agency	Av. Jaimes Freyre N°29	edupando@gmail.com
18	Gabriel	Espinoza	CEPB	Researcher	Chamber of commerce	Calle Mendez Arcos #	jeys40@hotmail.com
19	Rodney	Pereyra	Ministry of Labor	Advisor	Ministry of Labor	Achumani C/28-B Z/Ba	erpereiram@yahoo.es
20	Oscar	Diaz	BCB	Researcher	Central Bank	Calle Ayacucho y Merc	odiaz@bcb.gob.bo
21	Javier	Hinojosa	CNC	Director	Chamber of commerce	Av. Mariscal Santa Cru	jhinojosa@cnc.bo
22	Carolina	Gutiérrez	CAF		Development Bank	Avenida Arce, Av. Arce 2	ggutierrez@caf.com
23	Patricia	Hurtado	CAINCO		Chamber of commerce		patricia.hurtado@cainco.org.bo
24	Fernanda	Wanderley	CIDES	Proffesor	Postgraduate public program		fernandawanderley@cides.edu.bo
25	Pablo	Mendieta	CAINCO	Chief researcher	Chamber of commerce		pmendiet@gmail.com
26	Napoleón	Pacheco	Fundación Milenio	Director	Research institute		napoeco@yahoo.com
27	Enrique	Garcia	Academia de Ciencias Economicas	President	Research institute		

We have already made contact with most of them either through mail or phone and presented our proposal and talked about a possible forthcoming of a National Wage Policy Conference. In the academic area is important to increase the knowledge and practice of the CGE models among undergraduate students. Thus, we plan to organize a Workshop academically supported by the University of San Andrés. This workshops aims to teach the basics of SAM elaboration and CGE modelling. Finally the workshop will be replied in the city of Santa Cruz thanks to signed agreements between the public universities.

Institution	Contact	Target
Vice Presidency	Vice President Alvaro Garcia Linera	Vice President Linera is highly involved with policy making in Bolivia. Together with President

		Evo, Linera has just won a third consecutive term with 61% of the population's support. Linera's office has already been contacted through the Director of Participation of Social Movements and Citizens Gonzalo Gosalvez.
Ministry of Economics and Finance	Minister Luis Alberto Arce Catacora	Minister Arce is also part of the University of San Andres faculty. He is the longest standing minister in the history of Bolivia and has pervasive influence in all areas of policy making.
"Generación EVO"	Gabriel Limache Coordinator of "Generación Evo" Vicepresidency of Bolivia	"Generación EVO" is a group of young leaders. Among them there are newly elected members of Congress.

Since this project was elaborated in accordance to the research and capacity building agreement between Ciess-econometria and The Economic Research Institute of University of San Andres, we are going to organize a series of seminars and conferences around the country, thanks to network of public universities in Bolivia. Also, University of San Andres has its own TV channel and the research can be presented in on live TV. Some of the conferences can be broadcast as well.

## 6. List of team members

Indicating their age sex, as well as relevant/prior training and experience in the issues and research techniques involved (start with team/project leader).

Note that PEP favors gender-balanced teams, composed of one senior (or experienced) researcher supervising a group of junior researchers, including **at least 50% female researchers**, all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams. (Each listed member must post an up-to-date CV in their profile on the PEP website – refer to "[Howto submit a proposal](#)")

Name	Age	Sex (M,F)	Training and experience
Rolando Morales	Over 30	M	PhD from University of Genève, has worked extensively with applied general equilibrium models and microsimulation techniques.
Kathlen Lizarraga	Over 30	F	Phd from Westfälische Wilhelms Universität of Münster. Kathlen has written mostly on the effects of training and education on poverty, the labor market and inequality.
Ximena Soruco	Over 30	F	Phd from the University of Michigan. Ximena has

			many published books about the particularities of the Bolivian social relationships and labor market.
Franz Gomez-Soto	Over 30	M	Phd from the University of Ohio. Franz leads an international foundation dedicated to extend saving services to the working poor. He previously worked with RCT in several countries.
Jazmin Illanes	23	F	Research assistant in the Instituto de Investigaciones Económicas of University of San Andrés. Jazmin is an undergraduate student in the program of economics in the same university. As member of the research institute, she has experience in data gathering and processing.
Monica Cueto	25	F	Teacher assistant in the area of econometrics. At the moment is working as analyst for the Popular Bank of Credit. Currently she is enrolled in a master's program: Mathematical modelling.
Danilo Agramont	23	M	Teacher assistant in microeconomics and econometrics. Danilo is currently an undergraduate student and has received the Excellence Award in the University for two years in a row.
Erick Gomez	28	M	Research assistant in Ciess-econometrica. Erick has experience working in research projects and leading young debate teams in the Vice Presidency. Currently he is enrolled in a master's program: Mathematical modelling.
Valeria Salazar	21	F	Teacher assistant in calculus and introductory economics. Undergraduate student

## 7. Expected capacity building

Description of the research capacities that team members (and potentially their affiliated institutions) are expected to build through their participation in this project.

This is an important aspect in the evaluation of proposals and should be presented in some detail. What techniques, literature, theories, tools, etc. will the team and their institutions learn (acquire in practice) or deepen their knowledge of? How will these skills help team members in their career development? Also indicate which specific tasks each team member would carry out in executing the project.

The Economics Research Institute of the University of San Andrés (the most important higher education institution in Bolivia) has signed a collaboration agreement with Ciess-econometrica. The agreement aims to strengthen the research capacities of the University. One of the major goals is to form young researchers on state of the art techniques, build canals of communication with international partners, as is the case of PEP, and influence policy through scientific research. This research project fits perfectly with our main goals and will serve to start up several other

projects in need of collaboration between the university, the public sector institutions and foreign experts.

All the three undergraduate members will elaborate their undergraduate thesis making use of CGE models developed by PEP. That contribution will undoubtedly raise the academic level of the University's published works and will stimulate other members of the faculty and students to begin projects in the same vein.

<b>Name</b>	<b>Task/contributions</b>
<i>Rolando Morales</i>	General coordination and guidance of the project. He will present the project and its results in the TV channel of the University of San Andres.
<i>Ximena Soruco</i>	Track communication with the people and institutions identified in the influence plan. She will also be the main link with the Vice President.
<i>Kathlen Lizarraga</i>	Adaptation of the model and the SAM to be used. She will be in charge of monitoring the work of the undergraduate members and tutoring their undergraduate thesis.
<i>Franz Gomez-Soto</i>	Microsimulation and adaptation of the model to be used.
<i>Jazmin Illanes</i>	SAM elaboration and microsimulation.
<i>Monica Cueto</i>	Assistant in the adaptation of the model. GAMS programming and SAM construction
<i>Danilo Agramont</i>	Assistant in the construction of the SAM and model adaptation.
<i>Erick Gomez</i>	Assistant in the adaptation of the model and the SAM.
<i>Valeria Salazar</i>	Assistant in the communication strategy and data gathering.

## 8. List of past, current or pending projects in related areas involving team members

Name of funding institution, title of project, list of team members involved

<b>Name of funding institution</b>	<b>Title of project</b>	<b>Team members involved</b>
Sweedish Development Coperation and Ciess-Econometrica	Foreign aid is good for growth?	Rolando Morales
Swiss National Science Foundation	Education as a bridge between formality and informality: a CGE model and	Rolando Morales Erick Gomez

	microsimulations	
University for Strategic Investigation in Bolivia	Technical Education in Bolivia and its Effects on Income Generation	Kathlen Lizarraga
Interamerican Bank of Development	What Emigration Leaves Behind. The Situation of Emigrants and their Families in Cuenca, Ecuador	Ximena Soruco
University of San Andres	Labor Markets in Bolivia: the impact of education (Bachelor thesis)	Danilo Agramont
University of San Andres	Aplicación de reglas monetarias en Bolivia: Regla de Taylor	Monica Cueto
Fonds National Suisse	The impact of in informality: a CGE analysis	Erick Gomez Rolando Morales
University of San Andres	Undergraduate thesis	Valeria Salazar
Economics Research Institute	Gasto Público y crecimiento en Bolivia	Jazmin Illanes

**9. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.**

There are no issues or risks related with this research project.

**References and plagiarism:**

Applicants should also be very careful to avoid any appearance of plagiarism. Any text that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- <http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism>

PEP will be using a software program to detect cases of plagiarism.

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