

## Article

# When the Going Gets Tough . . . the Effect of Economic Reform Programmes on National Well-Being

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**Abstract:** Well-being is an essential human need and has social, psychological and economic benefits. Consequently, social scientists and economists, in particular, want to know whether economic reform can lead to increased (and sustainable) happiness. To answer this question, we applied a new approach—investigating the effect of economic reform programmes on national well-being for 154 countries between 2005 and 2018. As the dependent variable, we employed national subjective well-being scores based on people’s evaluation of their satisfaction with life. International Monetary Fund economic reform programmes provided a sufficiently long time-series and global presence for the main independent variable. We used a treatment effect model and fixed-effects instrumental variable panel with the novel approach of synthetic instruments, to address selection bias generated by the non-random selection of countries into International Monetary Fund programme participation, also controlling for unobservable characteristics influencing both International Monetary Fund participation and national well-being. Irrespective of the approach used, empirical findings show that economic reform programmes lead to increased national well-being globally, both in the short-term and the long-term. The results do not imply that International Monetary Fund arrangements should be used as policy tools to increase national well-being. They empirically confirm our argument that improvements in national economies sustaining increased well-being require intentional effort and engagement.

**Keywords:** economic reform programmes; national well-being; International Monetary Fund; treatment effect; synthetic instruments



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## 1. Introduction

Happiness and its pursuit are essential human needs. Aristotle cites happiness as a central purpose of human life and a goal in itself. In the Declaration of Independence, it is underlined as an important right for all citizens. Bhutan conducted its first Gross National Happiness survey in 2008. In 2019 New Zealand introduced the well-being budget, using national well-being indicators to structure budget allocations and measure its success [1]. Measuring well-being has been a key priority which the OECD has been pursuing for several years as a part of the Better Life Initiative [2]. In the meantime, many happiness courses have been introduced at Harvard, Yale, Berkley and Bristol universities and are proving to be very popular, while books, apps and podcasts teaching us how to become happier have been sprouting all over the world.

In the social sciences, happiness is often used as a short-hand expression for describing (one of) three measures of subjective well-being: the momentary feeling of joy and pleasure, sense of fulfilment of one’s potential or overall contentment with life [3,4]. Likewise, Frey [5] cites that the concept of contentment with life is the one most often used in economic research, where it is frequently called happiness, for reasons of simplicity. Consequently, we will follow a similar approach and employ the concept of contentment with life in our research, while referring to it interchangeably with the terms happiness and (subjective) well-being for brevity.

Why should well-being interest us? In his 1965 classic work *The Pattern of Human Concerns*, Cantril [6] found that people anywhere in the world have common goals, while Fleurbaey and Schwandt [7] established that close to 90% of respondents seek to maximize their well-being. Increased well-being is associated with a wide range of positive effects. Happy people live longer [8–10]. They are successful across multiple life domains, including health, marriage and friendship [11]. When feeling happy, people have more cognitive flexibility and are more motivated and successful in their pursuits [12]. It leads to people earning significantly higher levels of income in the future [13]. It also increases workplace performance [14]. A study of over 1.8 million employees across 73 countries by Christian Krekel, George Ward and Jan-Emmanuel De Neve [15], detected a strong positive correlation between employee well-being, productivity and firm performance. De Neve, Diener, Tay and Xuereb [16] found that a higher level of well-being makes people less attracted to risky behaviours. In that vein, Krekel, Swanke, De Neve and Fancourt [17] report that past and present levels of happiness predicted compliance during the COVID-19 lockdown. Politicians should especially care about well-being. Using cross-country panel data from Europe since 1970 and USA in 2016, Ward [18] shows that the electoral fate of governing parties is associated not only with the state of the macroeconomy but with the electorate's wider well-being. Recently some governments (e.g., France, Great Britain) and supranational entities (United Nations, European Union) have directly or indirectly cited the well-being of their constituencies as one of the key policy goals underpinning their respective efforts [4,19].

Although maximizing well-being is practically a universal goal, we have not managed to find a study focusing on whether and/or how national well-being can be attained and then sustained longer-term through a comprehensive set of economic reforms at the global level. Consequently, we want to know whether economic reform programmes can increase SWB (in a sustainable manner) and if yes, why is that so. More specifically, this research aims to explore the relationship between International Monetary Fund (IMF) economic reform programmes and national well-being at the global level. As our main independent variable, we decided to use IMF economic programmes, due to their comparative advantages of available long-running time-series and global presence (the number of country-users), to enable us to make coherent comparisons and better empirical inference. Our dependent variable is the national subjective well-being score, based on people's evaluation of their respective satisfaction with life.

In order to study the relationship between the national well-being and economic reform programmes, we started with the research of psychologist Sonja Lyubomirsky and her colleagues, that studies happiness and its determinants. Researchers differentiated between activity-based changes and circumstance-based ones [20,21]. Circumstance-based changes are one-time changes that tend to occur independently of effort and engagement; they are facts about your life such as winning a lottery, getting an inheritance, or getting an amicable colleague. Activity is something you chose to do or get involved in, which takes effort on your part (like starting to exercise or preparing for entry into an academic or professional programme). It involves continual effort and engagement in some intentional process. It focuses "a person's energy and behaviour in a variety of different ways, leading to more diverse set of experiences compared to circumstances. Intentional activity can lead to new opportunities and possibilities. With intentional activity people might make an effort to keep varying how and when they engage in the activity".

Sheldon and Lyubomirsky [20] conducted three studies to compare the effects of circumstantial change and activity change on subjective well-being (SWB). They found that both activity and circumstantial changes were associated with increased SWB at Time 2 two; however, only activity change was still associated with enhanced SWB at Time 3. Overall, current psychological studies support the idea that both activity and circumstantial change lead to increased happiness for a short period of time. Nevertheless, longer-lasting happiness requires intentional changes. It requires effort and hard work, it includes enterprise and overcoming of obstacles.

We argue that IMF reform programmes can be compared to activity changes described above. They do not involve a simple one-off transfer of the required money to the recipient country. The IMF loan is paid in tranches, and to get the required liquidity, the country must commit to a series of market-oriented reforms to address its economic vulnerabilities [22]. Common components of typical IMF arrangements include securing sustainable external financing, measures to curb demand, and a series of structural reforms to increase supply. IMF monitors and assesses the implementation of the agreed reforms, if it is not deemed adequate, the paying-out of the tranches is stopped. Moreover, IMF arrangements usually require substantial sacrifices since the consensus seems to be that output is depressed in the short term as the demand-reducing components of the programmes dominate.

Based on those findings, we can propose the following expectations: If IMF reforms are similar to the above-mentioned activity changes, then they will produce a significant increase in the national SWB. Moreover, they will also be associated with significantly increased SWB in the long term.

These are empirically tested in the paper with the focus being on exploring the effect of IMF economic reform programmes on national well-being at the global level. This study was carried out on the original dataset for the sample of 154 countries in the period between 2005 and 2018, using aggregated data for each observed country. We used the treatment effect model and fixed effects instrumental variable panel with the novel approach of synthetic instruments, to address selection bias generated by the non-random selection of countries into IMF programme participation, also controlling for unobservable characteristics influencing both IMF participation and national well-being.

There are several novelties and contributions of such a study: Firstly, we fill the gap of studies that empirically assess the relationship between economic reform programmes and national well-being. Moreover, although our research idea was initially inspired by the psychological studies differentiating between circumstance-based and activity-based reforms, we went a step further and succeeded in placing and corroborating the validity of this reasoning within the context of economic reform. In addition, we managed to go even further and confirm our results at the global level (154 countries) and in the long term (ten years).

Secondly, we tried to offer a fresh perspective on the impact of IMF programs on societies because the subjective well-being variable encompasses life as a whole, enabling us to consider economic, political and social aspects at the same time.

Finally, by means of variable and methodology selection, this paper contributes to the growing awareness that to better understand well-being, economics must be employed in conjunction with other academic fields.

The paper is organized as follows: after the introductory part, the research background is explained in Section 2, while the literature review is presented in Section 3. The materials and methods used are described in Section 4. Section 5 provides the results, which are discussed in Section 6, followed by the concluding remarks in Section 7.

## 2. Research Background

Researchers still have little understanding of what factors, if any, might bring about (stable) increase well-being. Lykken [23] demonstrates that humans can increase their happiness through various “happiness makers”, while Sheldon and Lyubomirsky [20] subdivide them into activity-based changes and circumstance-based changes.

Sheldon and Lyubomirsky [20] predict that the effects of positive changes in circumstances will usually decay more quickly compared to the effects of positive changes in activities. This can be explained by the fact that circumstances (e.g., salary, car ownership, new colleagues) represent relatively static facts about a person’s life. Although changes in circumstances can produce an increase in SWB, such boosts are short-lived as people start taking those novel circumstances for granted and stop deriving positive experiences from them (this phenomenon is also known as hedonic adaptation). On the other hand, activity-based changes may more likely continue producing SWB in the longer term as

they require intent, active engagement, persistence, sacrifice, learning and adaptation; these traits slow down or prevent hedonic adaptation. Consequently, Lyubomirsky and colleagues do a three-wave investigation of well-being. Positive circumstantial changes taking place between Time 1 and Time 2 should produce enhanced well-being at Time 2, but this effect should disappear by Time 3 because people quickly adapt to circumstantial changes and stop deriving positive experiences from them. Contrary to that, positive activity changes between Time 1 and Time 2 should continue at Time 2 and Time 3.

Further studies also support the idea that both activity and circumstantial change lead to increased happiness for short periods of time; however, longer-lasting happiness requires intentional, activity changes [24]. In sum, the data demonstrate that hard work, effort, enterprise and overcoming of obstacles present the most successful road to (sustainable) happiness.

In this study, we argue that IMF economic reform programmes can be compared to activity-based changes. Firstly, they do not involve a simple one-time change of circumstances in the sense of a one-off transfer of the required money to the recipient country. IMF arrangements come with the attached requirements for economic reforms to be undertaken during the programme. Their implementation is monitored and if they are not implemented, the disbursement of the money is stopped. The reforms comprise macro-level reforms aimed at restoring the sustainability of the government's fiscal situation and reducing future pressures to increase money supply and inflation. They also consist of structural adjustment conditions or microeconomic level market reforms to increase productivity. In sum, the conditionality should induce countries to commit to a set of economic policies aimed at long-term macroeconomic stability and recovery. This is also in line with another feature of activity-based changes, namely activities focusing on long-term self-improvement.

Secondly, during the process, participants in activity-based changes usually must delay some short-term gratification for the mentioned long-term rewards. In a similar vein, although structural adjustment is generally associated with short-term economic pain, the long-term reward is expected to be favourable for market participants.

Moreover, when it comes to activity-based changes, Lyubomirsky also stresses the intention and volition towards specifically designed SWB-increasing activities. With IMF reform programmes, countries first have to send to the IMF the letter of intent which is also a formal request for the arrangement. It comprises major goals of the economic reform programme, relevant policy measures for their realisation as well as technical indicators and monitoring arrangements for the programme.

Additionally, activity-based changes require investing sustained effort and practice in the activities. The implementation of reforms under the IMF arrangement is regularly monitored (usually on a three- or six-month basis). During the project, lifetime countries are supposed to keep addressing the necessary reforms, learn what the obstacles encountered are, adapt their efforts and upgrade them to reach macroeconomic stability and improve productivity.

Finally, activity-based changes should not be stopped with the end of the project, but they are to become an integral part of one's life to continue producing increased SWB (e.g., healthy eating or anxiety reduction practices should become part of one's life). Similarly, after the end of the economic reform programmes, reforms are not to be abandoned, otherwise, the country will again confront an unsustainable economic situation.

If the above-mentioned arguments are correct, the following expectations should be empirically corroborated:

If circumstance-based changes and activity-based changes lead to increased SWB in the short term (Time 2), we expect that economic reform programmes should lead to increased happiness in the short term. Moreover, if activity-based changes lead to increased happiness in Time 3 and further on, we expect that economic reform programmes will lead to increased happiness in the longer term (Time 3 and further on).

Consequently, it is possible to make the following two hypotheses:

**Hypothesis 1 (H1).** *Economic reform programmes will produce increased SWB in the short term.*

**Hypothesis 2 (H2).** *Economic reform programmes will produce increased SWB in the longer term.*

### 3. Literature Review

To the best of our knowledge, no other studies are trying to empirically assess the relationship between economic reform programmes and national well-being using such an empirical approach. Besides reaching for findings from psychological studies, in order to support the research background, we reviewed the literature which examines the effect of economic reforms on the economic and political, well-being-related indicators.

The existing literature abounds with the studies researching the relationship between IMF programmes and various individual economic and political variables. More precisely, there is vast literature exploring the effect of IMF programme participation with different economic outcomes (the balance of payments, current account, inflation, and the growth), which was successfully summarized by Bird [25]. There were more recent similar efforts reported by researchers exploring the impact of the IMF programs on GDP growth [26–30], income inequality [31–34] and health and education spending [35–37].

The considerable empirical literature confirms that people with higher income report higher SWB at a particular point in time and place [5,38]. Nevertheless, this is not necessarily true for observations over time [39,40]; although, these results have been challenged by [41] Stevenson and Wolfers [41]. The fact that people who have higher income at a point in time report a higher SWB score with respect to those with lower income may be linked to the social comparison effect. People compare their own income to that of their peers (of similar age, gender and region) and derive satisfaction from being superior. The adaptation effect suggests that as time passes, people get used to a higher income and do not enjoy the extra satisfaction from it. Moreover, if the relevant peers also experience a rise in income, an increase in happiness may not occur. Consequently, (people in) developed countries do not report higher satisfaction (or report slightly higher satisfaction) despite economic growth [42–44].

As income is necessary but not sufficient for happiness [21], it is important to look further for its determinants. Following Helliwell, Huang, Grover and Wang [45], data regarding governance quality are subdivided into two groups: quality of delivery and quality of democracy. The former is the average of four Worldwide governance Indicators (WGI): government effectiveness, regulatory quality, rule of law, and the control of corruption. The latter is the average of two WGI indicators: voice and accountability, and political stability and the absence of violence. In general, the authors find that changes in governance quality can contribute to changes in the quality of life. As empirically proven by the above-mentioned authors, confidence in government is positively correlated with SWB. In a similar vein, Berggren and Bjørnskov [46] find that functioning institutions for the most part have a positive relationship with subjective well-being (SWB).

Apart from the level of income, it is important to look at its distribution. The relationship between inequality and SWB is not a clear-cut one. The survey of the papers examining this issue carried out by Clark and D'Ambrosio [47], found half of them pointing towards a negative relationship between the two. The effect of inequality on SWB may depend on how it is interpreted. Inequality may be undesirable as the value of extra income is greater for the poor than for the rich. Secondly, it may instigate social tensions especially when inequality is perceived as unfair. On the other hand, it may be perceived as a signal of increased opportunity in the future or as deserved.

Di Tella, MacCulloch and Oswald [48], Wolfers [49], Alesina, Di Tella and MacCulloch [50] (and Frey [5]) consistently found a markedly negative effect of consumer price inflation on SWB. In addition, Dolan, Peasgood and White [51] show a large negative effect of unemployment on SWB. As documented by Layard, Clark and Senik [52], the main impact of unemployment on well-being is not through the loss of income, but through the loss of social status, self-esteem, workplace, and social life. Moreover, high unemployment also



has a negative spill-over effect on the employed because they feel increased job insecurity. Furthermore, Di Tella et al. [53] as well as Blanchflower et al. [54], demonstrate that, at the country level, one point of unemployment has a relatively stronger effect on SWB compared to inflation.

Berger, de Haan and Sturm [55], as well as Biglaiser and De Rouen [56], find that low-income countries may be more likely to seek Fund assistance as they have high export concentration and do not have access to capital markets. On the other hand, more advanced developing countries can experience severe, acute crises and call for IMF arrangements. The unemployment rate is one of the markers of economic crisis, and consequently, it is expected to be positively correlated with participation in IMF arrangements. Similarly, as reported by Moser and Sturm [57], countries with high inflation will more likely ask for an IMF loan. However, the IMF may be less willing to approve loans to such countries. Following the logic of empirical findings by Moser and Sturm [57] it is expected that lower government quality is positively associated with participation in IMF arrangements.

The effect of the economic reform programmes on democracy has been explored by Barro and Lee [26]. The authors show that greater IMF loan participation and larger loans have small negative effects on democracy and the rule of law. Birchler, Limpach and Michaelowa [58] analyse the impact of different types of World Bank and IMF programs on democratic transitions in recipient countries. They found no change in electoral accountability mechanisms in recipient countries due to the World Bank and IMF programmes. On the other hand, the World Bank and IMF programs induce changes in civil liberties and domestic oversight of the borrower government. Nelson and Wallace [59], show modest but definitively positive conditional differences in the democracy scores of participating and non-participating countries.

The scope of exploring the effect of IMF programmes on different political and social variables extends further to gender consequences. Detraz and Peksen [60] suggest that IMF involvement is likely to deteriorate the level of respect for women's economic rights while having no discernible effect on women's political rights.

By focusing on partial variables, the existing literature has limited scope in offering clear evidence about the impact of the IMF programmes on society as a whole. In addition, the recommendations about the future role of the IMF fail to be recognized as most of the mentioned studies report findings which do not converge on a unified assessment of its effects.

## 4. Materials and Methods

### 4.1. Data

To perform our analysis, we used time-series and cross-section data (We tested a large number of variables in our empirical research, and here we describe the statistically significant ones.) for many countries (154) and a reasonable number of years (between 2005 and 2018). We employed annual data for every country in the sample regarding each tested variable, following the approach of the literature in this field to give us a real chance of identifying linkages between changes in IMF economic reform programme participation and changes in national well-being. All variables are presented in Table A1 in Appendix A.

The dependent variable in the outcome equation shows a country-year panel of the average subjective well-being (SWB) score. It is the national average response to the question of life evaluations on the Cantril life ladder from 0 at the bottom and 10 at the top. The main explanatory variable of interest is participation in IMF arrangements. It is operationalized through the binary variable coded 1 if the observed country participates in an IMF financial arrangement for at least 5 months in a given year.

When assessing the effect of the IMF, researchers are confronted with two challenges. The causal effect of interest is the difference between the outcome with the treatment and the one without it. However, it is impossible to observe the counterfactual outcome—what would have happened to a country that had an IMF arrangement if it had not had one, and vice versa? Furthermore, the countries more likely to have an arrangement usually have

specific economic and political characteristics that may be unobservable such as political will [61]. These characteristics, which can themselves influence SWB, must be controlled for or they will lead to biased estimates of the effect of IMF programme participation. In order to address these issues, we used the treatment effect model (Biglaiser and De Rouen [56], Bauer et al. [62], Bird and Rowlands [62], Jensen [63]; Oberdabernig [64], Woo [65], Bird and Rowlands [28] and the instrumental variable, or more specifically, the two-stage-least-squares model (2SLS) (Even though the endogenous variable (IMF programme participation) is dichotomous, we followed the pragmatic approach of Angrist and Pischke [66] and decided for the 2SLS estimation (2009, pp. 197–198). Moreover, please also refer to the discussion here: <http://www.mostlyharmlesseconometrics.com/2009/07/is-2sls-really-ok>, accessed on 2 August 2020 (Barro and Lee, [26]).

At the same time, we used innovative “synthetic instruments” which only recently came into being and is the focus of the academic research. In this respect, we are inspired by the variables and the direction established by Lang [33] and followed the approach like Ahmed [67] and similar to Nunn and Qian [68] who created the method of interacted instruments—exploiting time variation in the IMF’s liquidity and cross-sectional variation in a country’s probability of having a lending arrangement with the IMF. We created the synthetic instrument by interacting the two variables in the period between 2005 and 2018.

#### 4.1.1. Treatment Effect Model

The treatment effect model consists of two equations: outcome equation and selection equation. What is of key interest, is the effect of endogenous binary treatment  $z_j$  on the continuous, fully observed variable  $y_j$ , conditional on the independent variables  $x_j$  and  $w_j$ . Consequently, it is necessary to estimate the outcome equation:

$$Y_{(i,t)} = \theta Z_{(it-1)} + \nu X_{(it-1)} + \varepsilon_{(it)} \quad (1)$$

where  $y$ —continuous dependent variable (well-being),  $z$ —endogenous dummy variable for participation or non-participation in the treatment (IMF arrangement),  $\theta$ —coefficient estimating the effect of endogenous binary treatment on the dependent variable which quantifies the catalytic effect of the IMF on well-being,  $x$ —vector of explanatory variables, and  $\nu$ —the estimated coefficient of  $x$ ,  $\varepsilon$ —error term (random component).

The binary decision to participate in the treatment is modelled as an outcome of an unobserved latent variable  $z^*$ . It is assumed that  $z^*$  is a linear function of exogenous covariates  $w$  and random component  $u_i$ .

Consequently, we estimate the following selection equation:

$$Z^*_{(it-1)} = \tau W_{(it-2)} + u_{it} \quad (2)$$

$z^*$ —unobserved latent variable,  $w$ —vector of covariates, and  $\tau$ —the estimated coefficient of  $w$ .  $u$  is the error term.

The observed decision regarding participation or non-participation in the treatment is:

$$z = \begin{cases} 1, & \text{if } z^* > 0 \\ 0, & \text{otherwise} \end{cases} \quad (3)$$

The Equations (1) and (2) have the following assumptions: bivariate normal distribution of error terms  $u_j$  and  $\varepsilon_j$  with mean zero, homoscedasticity  $\text{Var}(\varepsilon) = \sigma^2$ ,  $\text{Var}(u) = 1$ ,  $\text{Cov}(\varepsilon, u) = \rho\sigma$ . Lambda or the coefficient of the Inverse Mills Ratio ( $\lambda = \rho\sigma$ , where  $\rho$  is the correlation between two error terms,  $\sigma$  is the standard deviation of disturbance term in the outcome regression) shows if there is a selection bias. As  $\sigma$  is  $>0$  by definition, the sign of this coefficient is the same as  $\rho$ . If it is statistically significant, then there is a selection bias, and it is justifiable to use the treatment effect model. Furthermore, the model can be estimated either by using a two-step estimator (TSE) or a maximum likelihood estimator (MLE). TSE assumptions regarding the distribution of error terms  $u$  and  $\varepsilon$  are less strict

(with TSE, all we need to assume is that  $\varepsilon_j$  and  $u_j$  are independent of the explanatory variables, with mean 0 and  $u_j \sim N(0,1)$ . MLE, on the other hand, implies that  $\varepsilon_j$  and  $u_j$  have a bivariate normal distribution with mean 0, and  $u_j \sim N(0,1)$ ,  $\varepsilon_j \sim N(0, \sigma^2)$ , as well as  $\text{corr}(u_j, \varepsilon_j) = \rho$ .) and the model is sometimes easier to converge. On the other hand, the ML estimator is more efficient under the assumption of joint normal distribution of error terms in the two equations. Subsequently, we use TSE, but in robustness checks we also use MLE. We follow the literature's standard to reduce the potential reverse causality and lag the dependent variables.

The interacted IMF liquidity ratio and a country's probability of having an IMF arrangement act as our "exclusion restriction" in the selection equation.

#### 4.1.2. SLS Model (and Interacted Instrument)

The identification strategy in 2SLS rests on the interaction of time-variant variable (IMF liquidity ratio) with the interaction of the time-invariant variable (country's probability to receive an IMF programme i.e., fraction of years between 2005 and 2018 a country was under an IMF arrangement). The main aspect of this approach underlines that only the isolated interaction effect is used as a source of exogenous variation (inspired by Nunn and Qian [68] and Ahmed, [67]). The integral terms of the interaction are controlled for in both stages of the regression and are not presumed to be exogenous. As in Ahmed [67] and similar to Nunn and Qian [68], (the country's probability to receive IMF programmes is time-invariant, so it is absorbed by country-fixed effects. Year-fixed effects subsume the main effect corresponding to the IMF liquidity ratio.

Regarding the excludability of the instrumental variable—for it to be violated, omitted variables would have to be both correlated with the year-specific IMF liquidity and influence national well-being differently in countries with different levels of IMF probability. This is highly unlikely because the main sources of variation in the IMF's liquidity are driven mainly by organisational factors and effectively have nothing to do with borrowing country characteristics (Nelson and Wallace [59]).

Consequently, the 2SLS panel regression looks like this:

$$\text{1st stage: IMF programme} = \alpha \ln((\text{IMFL}_t) \times \text{IMFprob}_i)_{it-1} + \pi_1 X'_{it-1} + \xi_i + \psi_t + u_{it} \quad (4)$$

$$\text{2nd stage: Well-being} = \beta \text{IMFprogramme}_{it-1} + \pi_2 X'_{it-1} + \xi_i + \psi_t + \varepsilon_{it} \quad (5)$$

The dependent variable is well-being. It is a country-year panel of average subjective well-being scores derived from the World Happiness Report 2019 [69] for the period from 2005 until 2018. The subjective well-being measure, unless stated otherwise, is the national average response to the question of life evaluations. The variable of interest is the IMF programme, a dummy which equals 1 country,  $i$ , was under an IMF programme for at least 5 months in year  $t$ . Consequently,  $\beta$  is our key coefficient. IMF probability is the fraction of years the country was under an IMF programme in the observed period. IMF liquidity is the natural logarithm of the IMF's liquidity ratio that is defined as the amount of liquid IMF resources divided by liquid IMF liabilities.  $X$  is a vector of country-year specific covariates described lower in the text (Section 5: Results).

We also include country fixed effects  $\xi$  and year fixed effects  $\psi$ . The former captures unchanging cultural and institutional influences on reported well-being within nations and the latter, any global shocks that are common to all countries in each year. We follow the literature's standard and the approach of Lang [33] and lag the dependent variables.

## 5. Results

We present our basic model in Table 1. The regression describing IMF participation shows the instrumental variable which is significant at 1% level. Furthermore, low-income countries may be more likely to seek IMF assistance due to higher export concentration leading to difficulties in swift economic adaptation, and lack of access to international capital markets. In the well-being regression, the GDP coefficient shows that in a typical



country, economic development improves happiness, with all other things being equal. The coefficient next to the variable of interest describing IMF arrangements is statistically significant at 1% and positive. The reform programmes contributed to the happiness in the period we studied.

**Table 1.** Basic model.

(1)		
Well-Being		
Well-being		
L.loggdp	0.981 ***	(0.149)
L.imf	0.605 ***	(0.126)
_cons	−4.048 ***	(1.115)
L_imf		
L2.iv	2.345 ***	(0.240)
L2.loggdp	−0.356 ***	(0.0476)
_cons	1.935 ***	(0.439)
lambda	−0.337 ***	
N	1184	

Model corrected for the country and year fixed effects. Standard errors robust to clustering on country level in parentheses. Significance levels: \*\*\*  $p < 0.01$ .

In Table 2 we increase the number of covariates. The regression regarding participation in IMF arrangements again demonstrates a statistically significant negative sign next to log GDP per capita, in accordance with the literature findings. The sign next to the instrumental variable is positive. The unemployment rate is one of the most reliable lagging indicators of economic difficulties when the IMF usually intervenes, which is empirically confirmed here. Looking at the well-being regression, apart from the log GDP per capita, which is again positive and statistically significant, there is delivery quality, inflation, and the unemployment rate to consider. Signs next to these variables are in accordance with the literature findings. Our empirical findings corroborate the assumption that one point of unemployment affects SWB more than one point of inflation does. The key variable of interest—IMF arrangements—is again positive and statistically significant at the 1% level.

**Table 2.** Basic model with controls.

(1)		
Well-Being		
Well-being		
L.loggdp	0.559 ***	(0.203)
L.delivery	0.369 ***	(0.127)
L.cpi	−0.00630 ***	(0.00135)
L.unemploy	−0.0316 ***	(0.00772)
L.imf	0.539 ***	(0.130)
_cons	−0.0484	(1.578)
L_imf		
L2.iv	2.047 ***	(0.249)
L2.loggdp	−0.477 ***	(0.0755)
L2.delivery	−0.0185	(0.104)
L2.cpi	0.00521	(0.00703)
L2.unemploy	0.0592 ***	(0.00873)
_cons	2.516 ***	(0.675)
lambda	−0.315 ***	(0.0712)
N	1132	

Model corrected for the country and year fixed effects. Standard errors robust to clustering on country level in parentheses. Significance levels: \*\*\*  $p < 0.01$ .

To execute robustness checks, in Table 3, the variable encompassing all the IMF arrangements is disaggregated into specific arrangements—stand-by arrangements (SBA), extended fund facilities (EFF), and extended credit facility (ECF) as well as the sum of SBA and EFF. All the control variables remained the same for ease of comparison. It is visible that coefficients next to all individual IMF arrangements are positive and substantially statistically significant. It can be observed that disaggregating IMF programme variables into different arrangement types, SBA and ECF coefficients are stronger than the EFF one. Consequently, the arrangements such as SBA, where more developed countries can more visibly commit to the required reforms and where IMF can influence them more strongly to do it are associated with higher levels of subjective well-being. It is similar to the arrangements for less developed countries such as ECF focused on ownership and leniency. Transition arrangements like EFF, with mixed effects in this respect, focused more on structural reforms which take time to materialise and can be politically sensitive have less effect on subjective well-being.

**Table 3.** Different types of IMF programmes.

	(sba-eff)	(ecf)	(eff)	(sba)
	Well-Being	Well-Being	Well-Being	Well-Being
Well-being				
L.loggdp	0.416 ** (0.200)	0.551 *** (0.211)	0.401 ** (0.198)	0.435 ** (0.214)
L.delivery	0.406 *** (0.126)	0.364 *** (0.134)	0.398 *** (0.127)	0.415 *** (0.135)
L.cpi	−0.00639 *** (0.00130)	−0.00633 *** (0.00145)	−0.00632 *** (0.00132)	−0.00637 *** (0.00136)
L.unemploy	−0.0300 *** (0.00783)	−0.0284 *** (0.00837)	−0.0264 *** (0.00784)	−0.0305 *** (0.00821)
L.sba-eff	0.396 ** (0.190)			
L.ecf		0.847 *** (0.181)		
L.eff			0.465 ** (0.213)	
L.sba				0.880 ** (0.347)
_cons	1.305 (1.544)	−0.279 (1.649)	1.428 (1.528)	1.151 (1.652)
Lsba-eff/ecf/eff/sba				
L2.iv	1.618 *** (0.258)	1.736 *** (0.311)	1.742 *** (0.342)	1.058 *** (0.278)
L2.loggdp	0.272 *** (0.0900)	−1.378 *** (0.151)	0.190 (0.147)	0.228 ** (0.0945)
L2.delivery	−0.321 *** (0.107)	−0.124 (0.192)	−0.0257 (0.164)	−0.389 *** (0.118)
L2.cpi	0.00344 (0.00739)	0.00869 (0.0107)	0.00657 (0.0108)	0.00164 (0.00796)
L2.unemploy	0.0596 *** (0.00882)	0.0643 *** (0.0160)	0.0683 *** (0.0117)	0.0382 *** (0.00975)
_cons	−4.641 *** (0.850)	9.209 *** (1.201)	−4.635 *** (1.383)	−4.162 *** (0.891)
lambda	−0.252 *** (0.0967)	−0.438 *** (0.102)	−0.279 *** (0.0995)	−0.456 *** (0.169)
N	1132	1132	1132	1132

Model corrected for the country and year fixed effects. Standard errors robust to clustering on country level in parentheses. Significance levels: \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Countries using ECF ordinarily do not use SBA or EFF arrangements.

In Table 4, the robustness check is carried out by studying how IMF arrangements perform over time. We follow the approach of Lang [33] and do it via lags. It is visible that apart from the beginning when the effect is evident, the effect of IMF arrangements is strongest in years 8, 9 and 10. The former can be explained by the initial reform enthusiasm and the latter especially by the fact that it takes time for the reforms to have an effect. When they finally begin taking effect and bring results, they also bring increased happiness. Further on, we continued with the robustness checks. We tested our basic estimation by means of a maximum likelihood estimator, instead of a two-step one, in Table 5. The Wald test at the bottom again shows that there are unobservable variables influencing both IMF arrangements and well-being, so we were justified in using the treatment effect model. Finally, it is again visible that even in this context our key variable of interest—IMF arrangements—is positive and significant at the 5% level.

**Table 4.** Short-term to long-term effects of IMF programmes.

	(t − 1)	(t − 2)	(t − 3)	(t − 4)	(t − 5)	(t − 6)	(t − 7)	(t − 8)	(t − 9)	(t − 10)
	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being	Well-Being
Well-being										
L.loggdp	0.56 *** (0.20)	0.50 ** (0.20)	0.47 ** (0.20)	0.60 *** (0.21)	0.58 ** (0.23)	0.58 ** (0.25)	0.69 ** (0.28)	0.95 *** (0.32)	0.88 ** (0.40)	1.08 ** (0.47)
L.delivery	0.37 *** (0.13)	0.37 *** (0.13)	0.38 *** (0.13)	0.32 ** (0.13)	0.15 (0.13)	0.11 (0.14)	0.04 (0.15)	0.16 (0.17)	0.15 (0.21)	0.21 (0.27)
L.cpi	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.01 *** (0.00)	−0.00 *** (0.00)	−0.00 (0.00)	−0.00 (0.00)
L.unemploy	−0.03 *** (0.01)	−0.03 *** (0.01)	−0.03 *** (0.01)	−0.03 *** (0.01)	−0.04 *** (0.01)	−0.04 *** (0.01)	−0.04 *** (0.01)	−0.03 *** (0.01)	−0.04 *** (0.01)	−0.04 ** (0.02)
L.imf	0.54 *** (0.13)	0.40 *** (0.10)	0.26 *** (0.09)	0.30 *** (0.09)	0.33 *** (0.10)	0.38 *** (0.09)	0.30 *** (0.09)	0.61 *** (0.12)	0.84 *** (0.18)	0.69 *** (0.23)
_cons	−0.05 (1.58)	0.46 (1.57)	0.73 (1.56)	−0.25 (1.67)	−0.30 (1.80)	−0.55 (1.96)	−1.56 (2.18)	−3.70 (2.47)	−3.24 (3.10)	−4.55 (3.64)
L.imf										
L2.iv	2.05 *** (0.25)	2.95 *** (0.27)	3.32 *** (0.28)	3.17 *** (0.27)	2.98 *** (0.27)	4.08 *** (0.34)	4.10 *** (0.38)	2.91 *** (0.35)	1.74 *** (0.30)	1.38 *** (0.30)
L2.loggdp	−0.48 *** (0.08)	−0.43 *** (0.08)	−0.39 *** (0.08)	−0.38 *** (0.08)	−0.39 *** (0.08)	−0.29 *** (0.08)	−0.30 *** (0.08)	−0.35 *** (0.09)	−0.37 *** (0.09)	−0.39 *** (0.10)
L2.delivery	−0.02 (0.10)	−0.02 (0.11)	−0.04 (0.10)	−0.08 (0.10)	−0.07 (0.10)	−0.12 (0.11)	−0.14 (0.11)	−0.22 * (0.12)	−0.32 ** (0.13)	−0.30 ** (0.15)
L2.cpi	0.01 (0.01)	0.01 (0.01)	−0.00 (0.01)	−0.00 (0.01)	0.00 (0.01)	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)
L2.unemploy	0.06 *** (0.01)	0.06 *** (0.01)	0.05 *** (0.01)	0.05 *** (0.01)	0.04 *** (0.01)	0.02 ** (0.01)	0.01 (0.01)	0.02 (0.01)	0.02 * (0.01)	0.02 * (0.01)
_cons	2.52 *** (0.68)	1.96 *** (0.69)	1.73 ** (0.68)	1.69 ** (0.69)	1.97 *** (0.69)	1.15 (0.73)	1.36 * (0.76)	1.91 ** (0.78)	2.26 *** (0.83)	2.45 *** (0.93)
lambda	−0.31 *** (0.07)	−0.27 *** (0.06)	−0.19 *** (0.05)	−0.20 *** (0.05)	−0.23 *** (0.06)	−0.22 *** (0.05)	−0.17 *** (0.05)	−0.32 *** (0.07)	−0.44 *** (0.10)	−0.41 *** (0.13)
N	1132	1132	1132	1076	1007	934	838	726	606	486

Model corrected for the country and year fixed effects. Standard errors robust to clustering on country level in parentheses. Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table 5.** Basic model with MLE.

(1)		
Well-Being		
Well-being		
L.loggdp	0.886 ***	(0.322)
L.imf	0.166 **	(0.0762)
_cons	−3.082	(2.368)
L.imf		
L2.iv	2.413 ***	(0.319)
L2.loggdp	−0.349 ***	(0.0783)
cons	1.860 **	(0.723)
arthro	−0.262 ***	(0.0764)
lnsigma	−1.082 ***	(0.0493)
N	1184	

Wald test of indep. eqns. (rho = 0): chi2(1)11.70 Prob>chu2 = 0006. Significance levels: \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

The model corrected for the country and year fixed effects. Standard errors robust to clustering on country level in parentheses. Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Ln sigma is the natural logarithm of  $\sigma$ , the standard deviation of the error term from the outcome equation. Arthro is Fisher's  $z$  transformed correlation of the error terms of the selection and outcome equation i.e., arc-hyperbolic tangent of  $\rho$ . The high statistical significance of arthro indicates the presence of unobservable variables influencing both IMF participation and national well-being, which justifies the use of treatment effect regression.

Next, we move on to the 2SLS approach. Our basic model in Table 6 again performs well confirming the positive role of reform programmes for life satisfaction. Underidentification is comfortably rejected and the Kleibergen–Paap F-statistics surpasses conventional levels of weak identification tests (Most commonly used is the Steiger–Stock threshold of 10).

**Table 6.** Basic model (2SLS).

	(1)
	Well-Being
L.imf	1.008 ** (0.442)
L.loggdppc	1.350 *** (0.417)
N	1360

Kleibergen–Paap underidentification LM = 15.227; Kleibergen–Paap underidentification  $p = 0.0001$ ; Kleibergen–Paap weak identification F = 16.053. Significance levels: \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 7 adds new variables as covariates. It empirically confirms that income inequality reduces life satisfaction. For the global sample, on average, inequality is not interpreted as a sign of opportunity. On the contrary, inequality is found to have a negative impact on well-being, probably because social mobility is perceived to be lower, there are related social tensions, or people have an aversion to it. The main variable of interest, IMF arrangements, is again positive and statistically significant at 5%. Underidentification is rejected and the Kleibergen–Paap F-statistics comfortably surpasses conventional levels of weak identification tests.

**Table 7.** Basic model with new controls (2SLS).

	(1)
	Well-Being
L.imf	0.458 ** (0.218)
L.loggdpp	1.325 *** (0.380)
L.gini	−3.268 * (1.743)
L.democr	0.749 (0.182) (0.030)
N	998

Kleibergen–Paap underidentification LM = 17.979; Kleibergen–Paap underidentification  $p = 0.0000$ ; Kleibergen–Paap weak identification F = 21.429. Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Finally, in Table 8, in order to test the robustness of the instrumental variable, we substituted a time-constant probability that is multicollinear with country-fixed effects with a time-varying probability. The results are robust for this modification. (Still, the results should be interpreted with caution because Kleibergen–Paap rk Wald statistics marginally surpass 10).

**Table 8.** Examining robustness of instrumental variable (2SLS).

	(1) Well-Being
L.imf	0.956 * (0.577)
L.loggdp	1.347 ** (0.624)
L.gini	−0.088 (0.476)
L.trust	0.444 * (0.261)
N	969

Kleibergen–Paap underidentification LM = 10.740; Kleibergen–Paap underidentification  $p = 0.0010$ ; Kleibergen–Paap weak identification F = 10.459. Significance levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ .

## 6. Discussion

Happiness is an omnipresent human need. It also leads to a wide range of social, psychological and economic benefits. Moreover, it is one of the determining factors in deciding election wins. National and supranational institutions and politicians cite (sustainable) happiness as the main aim for their constituents. It is no wonder, then, that social scientists in general, and economists in particular, want to know whether economic reform can lead to increased (and sustainable) national well-being.

In order to answer this question, we applied a new approach—investigating the effect of IMF economic reform programmes on national well-being for 154 countries in the period between 2005 and 2018. In this context, as a dependent variable, we employed national subjective well-being scores from World Happiness Reports, based on people's evaluation of their respective satisfaction with life. IMF economic reform programmes provided us with sufficiently long time-series and global presence (number of country-users) to make our empirical inference coherent and reliable. This is in congruence with standard practice in the academic literature exploring subjective well-being or the effect of IMF programmes. Using an original dataset, we employed the treatment effect model, as well as the fixed-effects instrumental variable panel, with synthetic instruments and post-estimation robustness tests. Irrespective of the approach used, we demonstrated that economic reform programmes have a positive effect on national well-being both in the short term and the long term.

The empirical findings, thus, illustrate that IMF reform programmes are similar to activity-based changes which require time and effort but bear fruit in terms of satisfaction. These results do not portray IMF economic reform programmes as a tool to increase happiness. They underline the fact that, in order to sustain increased happiness, comprehensive economic change takes intentional, persistent effort and engagement.

There are several novelties and contributions of such a study: Firstly, we interlinked concepts from various disciplines within the social sciences in a new way, in order to empirically assess the effect of economic reform on national well-being. Furthermore, we succeeded in empirically demonstrating the positive effect of economic reform on national well-being at the global level in both the short term and the long term. The research empirically demonstrates the curve which plots the relationship between economic reform programmes and national well-being in time. It follows the pattern underlining initial enthusiasm with reform, followed by necessary, although drudging, reformist effort and renewal of satisfaction when the reforms start to come to fruition. As the well-being timeframe does not coincide with the timeframe spent in office by the elected government officials, it brings out the dilemma between the public and the private interest on the part of politicians. Our results also confirm that the types of economic programmes with the focus on stronger engagement (for richer countries) or ownership (for poorer countries) lead to relatively higher SWB.



Secondly, our focus on subjective well-being manages to add a new perspective to the studies on the effect of IMF programmes. The ongoing research on the effects of IMF arrangements so far has not offered an overwhelming consensus about the lack or the presence of their beneficial effects. With this study on the relationship between IMF and national SWB, we offered a new dependent variable that encompasses and reconciles otherwise competing measures of welfare. Thirdly, this study also underscores the need for an integrated approach among various disciplines within the social sciences in order to better understand the concept of well-being and the successful application of research findings in practice.

Our findings, regarding other important determinants of subjective well-being, are in line with the latest research on the topic. The positive relationship between income and national well-being is in consonance with the conclusions from the latest literature studying cross-national determinants of happiness (annual editions of World Happiness Report [69–77], Clark, Flèche, Layard, Powdthavee and Ward [42], Frijters, Clark, Krekel and Layard [78], Helliwell, Huang and Wang [4]). They differ from the findings by Easterlin [39,40]. Different coverage, timeline and data may be one of the reasons. Our sample covers underdeveloped, developing and developed countries. It is possible that a rise in income enabled the meeting of basic needs in an underdeveloped population, leading to higher national well-being, and thus, influenced our findings. When looking at the cross-nation variations globally, such a perspective might also dominate over the human tendency to compare and be dissatisfied if less fortunate.

The results also statistically corroborate the significant negative influence of consumer price inflation and unemployment, as found by Wolfers, [49], Alesina, Di Tella and MacCulloch [50,53], Frey [5] as well as Dolan, Peasgood and White [51]. At the country level, one point of unemployment has a stronger negative effect than consumer price inflation. Empirical findings also underline the negative effect of inequality on happiness, possibly through increased social tensions (Layard, Clark and Senik [52]). It may also reflect the fact that people predominantly care about the well-being of others and inequality within society.

Cross-national data allow us to study the importance of institutions, as they may vary significantly across the countries. We make an evidence-based case that changes in the governance quality (rule of law, regulatory quality, and effectiveness as well as corruption control) lead to positive changes in quality of life. These findings are in line with Helliwell, Huang, Grover and Wang, [45].

## 7. Conclusions

The study of SWB, as well as this research, offers a new lens into how people experience economic processes and life in general. Gaining a better understanding of this area is of crucial importance for both academics and policy officials to enable the creation of policies to improve people's lives. In this respect, good quality studies exploring the effects of particular policies on well-being can be useful; however, this is not enough. Researchers and policy-makers must know what works and why, in order to support the creation of effective policies. This study offers a tentative lesson underlining the importance of intentional effort and engagement for sustained happiness in the context of economic reforms at the global level. This could be complemented by further research into the possible difference in the findings if employing data on eudaimonic well-being (compared to an evaluative one) when they become more widely available. More generally, as researchers are exploring new aspects of SWB, it would be useful to study the role of optimism or hope towards behaviours that determine a better future (in economic and non-economic terms).

In addition, despite growing awareness among academics and policy-makers about the importance of SWB, currently, there is a wide gap between SWB study and SWB policies. Tension is present between the authors advocating for happiness as an explicit policy goal versus those more cautious about it due to the possibility of political manipulation and misuse. Hopefully, lessons from this research can help to widen the policy debate,

and policy-makers belonging to either school of thought to decide on the nature of the appropriate policies for sustained happiness.

Finally, this paper refrains from making value judgements about policy contents of IMF arrangements. It is assumed that their policy prescriptions are correct and instead the study focuses on the overall effect of changes in activity on SWB. Still, overall research on IMF has offered no clear-cut consensus regarding IMF policy choices so far. This underlines the necessity to learn more with respect to particular nuances of IMF economic arrangements and their effect on SWB as more and better data become available. Future research can focus on specific policies, individual IMF conditionalities or implementation and their effect, in this respect.

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## Appendix A

**Table A1.** Data description.

Variable	Label	Source
Well-being	Well-being	A country year panel of SWB scores derived from the 2019 release of the Gallup World Poll covering years between 2005 and 2018 [69]. The SWB measure is the national average response to the question of life evaluations. The question is: “Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?” This measure is referred to as the Cantril life ladder.
IMF participation	imf	Indicator 1 if IMF programme is in place for at least 5 months in year t. Dreher [29] updated by the authors based on IMF Annual Reports.
SBA participation	sba	Indicator 1 if IMF stand-by arrangement is in place for at least 5 months in year t. Dreher [29] updated by the authors based on IMF Annual Reports.
EFF participation	eff	Indicator 1 if IMF extended fund facility is in place for at least 5 months in year t. Dreher [29] updated by the authors based on IMF Annual Reports.
ECF participation	ecf	Indicator 1 if IMF extended credit facility is in place for at least 5 months in year t. Dreher [29] updated by the authors based on IMF Annual Reports.
SBA and EFF participation	sba-eff	Indicator 1 if IMF stand-by arrangement and extended fund facility are in place for at least 5 months in year t. Dreher [29] updated by the authors based on IMF Annual Reports.
Instrumental variable	iv	Instrumental variable exploits time variation in the IMF’s liquidity and cross-sectional variation in a country’s probability of having a lending arrangement with the IMF. It is a synthetic instrument created by interacting the two variables in the period between 2005 and 2018.

Table A1. Cont.

Variable	Label	Source
Democratic quality measure	democr	Democratic and delivery quality measures are based on the Worldwide Governance Indicators project ([79]). The original data have 6 dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. WHR 2019 reduces the number of dimensions to 2 using the simple average of the first 2 measures as an indicator of democratic quality, and the simple average of the other 4 measures as an indicator of delivery quality, following Helliwell and Huang [80].
Delivery quality measure	delivery	Democratic and delivery quality measures are based on the Worldwide Governance Indicators project [79]. The original data have 6 dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. WHR 2019 reduces the number of dimensions to 2 using the simple average of the first 2 measures as an indicator of democratic quality, and the simple average of the other 4 measures as an indicator of delivery quality, following Helliwell and Huang [80].
GDP per capita	gdp	Gross domestic product per capita in constant 2011 USD (World Development Indicators [81]).
IMF liquidity ratio	imflr	Liquid resources (usable currencies plus Special Drawing Rights contributed) divided by liquid liabilities (total of members' reserve tranche positions plus outstanding IMF borrowing from members). Authors' calculation based on IMF Annual Reports and the IMF's International Financial Statistics [82].
IMF probability	imfprob	$\frac{\sum_{t=2005}^{2018} I(\text{IMF programme}_i=1)}{2018-2005}$
Gini	gini	Gini coefficient of net income according to the SWIID version 8 by Solt [83].
Consumer price index	cpi	Inflation, consumer prices (annual%)World Development Indicators 2019 [81]
Unemployment rate	unemploy	Unemployment, total (% of total labour force) (modelled ILO estimate)World Development Indicators 2019 [81]
Trust in government	trust	Data from WHR 2019 [69]. They refer to confidence in national government from Gallup World Poll. The wording of the question is: "Do you have confidence in each of the following, or not? How about the national government?" The measure is defined as the percentage of respondents saying yes, excluding those who did not provide an answer.

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