The Elusive Effects of Trade on Growth:
Export Diversity and Economic Take-Off*

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Abstract

The hallmark of the voluminous growth determinants literature is the absence of a clear-cut effect of trade on growth. Numerous candidate regressors have been motivated by alternative theories and tested by a multitude of empirical studies, but not one trade regressor has been robustly related to growth. In this paper, we leverage Melitz' (2003) insights regarding sectoral export dynamics and Feenstra and Kee's (2008) approach to productivity and sectoral export diversity to propose a structured approach to trade and growth determinants. Instead of relying on aggregate trade measures as previous studies, we examine the diversity of sectoral exports and the development of broad-based comparative advantage as a potential growth determinant. Controlling for model uncertainty and endogeneity, we find that export diversity serves as a crucial growth determinant for low income countries, an effect that weakens with the level of development.

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I. Introduction

The elusive effects of trade are a fundamental puzzle in the growth determinants literature. Numerous theories link trade to economic growth, but exhaustive analyses of growth determinants have not produced robust trade effects.[1] Endogeneity bias compounds the issue since feedback effects from growth to trade are commonly ignored in studies that examine a wide range of growth determinants.[2] Complicating matters further are the multitude of trade channels and their positive *or* negative effects on growth that different trade theories suggest. When competing theories propose alternative candidate regressors and/or opposing effects, the associated model uncertainty may artificially inflate t-statistics (see Raftery, 1995, and Raftery and Zheng, 2003).

In this paper, we extend the empirical trade-and-growth literature in two dimensions. First, we identify trade effects on growth by focusing not on the volume but the composition of trade. While previous growth determinant approaches use aggregate trade measures, we examine trade-driven growth through sectoral export diversification. We do not rely on aggregate tariff levels or aggregate trade volumes, but instead examine variations in the breadth of countries' comparative advantages across sectors as a potential growth determinant. Second, we simultaneously address model uncertainty and endogeneity to produce consistent test statistics and reduce the associated endogeneity and omitted variable bias.

Levine and Renelt (1992) first included a number of trade measures in their seminal study of growth determinants and reported that no trade measure is robustly linked to growth. "Primary Export Shares", "Openness" (import+export share of GDP) and/or "Years Open"[3] have since become standard candidate growth determinants, although it is well known that neither variable is robust. Sala-i-Martin (1997) subsequently used Levine and Renelt's "Openness" measure and added "Primary Export Shares" and "Years Open". Only after lowering Renelt and Levine's extreme bound effect-thresholds, he found "Years Open" and "Primary Export Shares" to be

[1] Rodriguez and Rodrik (2001) provide a skeptics' guide to the related literature of reduced-form trade-policy-and-growth empirics which includes trade measures but only a fraction of potentially relevant growth determinants. The authors side with Edwards' (1993) previous trade-and-growth survey assessment that these studies "have been plagued by empirical and conceptual shortcomings. The theoretical frameworks used have been increasingly simplistic, failing to address important questions such as the exact mechanism through which export expansion affects GDP growth."

[2] The exceptions are Barro (2003) and Durlauf et al. (2008).

[3] The fraction of years in the period 1950-1990 for which Sachs and Warner (1995) rate a country "open to trade".

robust, but his approach was called into question because it highlighted the arbitrary width of the extreme bounds. Sala-i-Martin's analysis has since been reexamined in a multitude of studies using Bayesian Model Averaging (BMA) where effect-thresholds are theory-specified. Using the original (and/or updated) Sala-i-Martin data, in cross sections and/or panels, with different parameter and/or model priors, not a single paper identifies any one of the above trade measures as exerting a decisive effect on growth.[4] In the most recent and the most extensive analysis of trade, growth and model uncertainty (without controlling for endogeneity, however), Eris and Ulasan (2013) examine "Openness", "Real Openness", "Years Open", "Tariff Rates", "NonTariff Barriers" and "Black Market Premiums" to find "no evidence that trade openness is directly and robustly correlated with economic growth in the long run."

To better understand how trade affects growth, we move away from aggregate trade measures and focus on sectoral export diversity. Our fine-grained approach highlights that it is the evolution of export sectors along the development path that affects economic growth.[5] To measure export diversity, we use the extensive margin measure introduced by Hummels and Klenow (2005), which is based on earlier work by Feenstra (1994).[6] The Hummels-Klenow measure has been employed extensively in studies of export diversity and income patterns – although its connection to economic growth has not been explored to date. The descriptive literature examining export diversity and income patterns finds conflicting results. For advanced countries, income was found to be correlated with increasing or constant export diversification (Proudman and Redding, 2000, and Funke and Ruhwedel, 2001). Studies utilizing global panels find that exports first diversify and then re-concentrate with income (Cadot et al., 2011, and Papageorgiou and Spatafora, 2012), or that diversity is rising throughout, but with decreasing intensity (Brasili et al., 2000, De Benedictis et al., 2009, Parteka, 2010, and Besedes and Prusa, 2011). The only salient and uncontroversial feature of this literature is then that diversification *levels* differ distinctly by development stages. That is, the relationship between diversity and

[4] See Fernández at al. (2001), Brock and Durlauf (2001), Sala-i-Martin et al. (2004), Durlauf et al. (2008), Ciccone and Jarocinski (2010) and Eicher et al. (2011). Note that BMA results have better predictive performance and a lower Mean Squared Error than any single regression model (Raftery and Zheng, 2003).
[5] We discuss the various theories that give rise to such a hypothesis in the following section.
[6] Our empirical results are robust to using other export diversity measures commonly employed in the literature, such as Herfindahl, Gini and Theil indices. Detailed results are provided below in the robustness section.

income is positive for low income countries while the correlation for high income countries is somewhat uncertain.[7]

Our approach to identifying an effect of export diversity on growth builds on Durlauf et al.'s (2008) seminal BMA panel study of growth determinants, which is itself based on the methodology and dataset of Barro (2003). We extend the time dimension of the Durlauf et al. panel and introduce export diversity as a potential growth determinant. In addition, we utilize a methodology that fully accounts for model uncertainty in the presence of endogeneity, since Durlauf et al. examined model uncertainty in the second stage only (Barro, 2003, does not consider model uncertainty or endogeneity).

Our findings confirm the Durlauf et al. results that aggregate trade volumes are not a robust growth determinant in a panel of countries. Once we introduce export diversity, however, we find that the breadth of a country's exports is a crucial determinant of economic growth for low income economies. The effect is associated with a high posterior probability and it is also economically important: a one standard deviation increase in export diversity for low income countries is shown to increase their average annual growth rate by one percentage point. Interestingly, there is also evidence that the effect of export diversity on low income countries is amplified by reliance on primary exports. The greater the primary export reliance of a low income country, the larger is the growth impact of diversification.

Aside from export diversity, the growth determinants suggested by our approach are those central to all previous studies: "InitialGDP", "PopulationGrowth" and "Investment" reflect neoclassical growth models; "GovernanceQuality" and "GovernmentExpenditures" represent new growth theories; and there is also support for theories that link religion to growth as indicated by the importance of the "JewishFraction" of the population. In addition, we show explicitly that a country's terms-of-trade, real exchange rate, trade agreement memberships, openness, FDI flows and GDP volatility do not drive the effect of export diversity on growth.

[7] The descriptive literature also developed stylized facts that relate export diversity to aggregate trade growth. Hummels and Klenow (2005) show that larger (in terms of GDP) and richer countries (in terms of GDP per capita) have greater trade volumes and more diversified exports. Brenton and Newfarmer (2007) document that increased export diversity accounts for 20 percent of trade growth in developing nations, while Kehoe and Ruhl (2013) show that it explains 10 percent of trade growth in advanced countries. Below we take this literature one step further and examine the effects of diversity on economic growth.

Previously, Feenstra and Kee (2008) examined the relationship between productivity and export diversity in a Melitz (2003) type model of heterogeneous firms. In Feenstra and Kee's approach, greater export diversity causes increases in a country's average productivity. In their empirical specification, they then examine the link between income *levels* and export diversity using standard gravity controls but not allowing for any other alternative income determinants (e.g., investment, education, etc.). Our approach differs substantially as we ask whether export diversification drives income *growth* after having controlled for 28 competing growth determinants. We consider a host of alternative theories, ranging from governance quality, investment, religion, inflation, life expectancy and education to geographic factors. In addition, we apply an appropriate growth framework that features "InitialGDP" and employ an econometric methodology that is designed to juxtapose alternative growth theories (IVBMA) in the presence of endogeneity. Moreover, Feenstra and Kee restrict their analysis to the exports of 48 countries to the United States from 1980-2000 while we examine the diversity of global exports for 84 countries from 1965-2009. Finally, we investigate not only the extensive but also the intensive margin of exports in our robustness section.

The remainder of the paper is organized as follows. Section II sketches the various links between trade, diversity and growth suggested in the literature and highlights the importance of model uncertainty in this context. The section also discusses our preferred measure of export diversity and our empirical specification. Section III provides an overview of the IVBMA methodology. Section IV describes the structure of the panel of countries used in our empirical analysis and also introduces alternative export diversity measures considered in the literature. Section V presents a discussion of the empirical results. Section VI considers a range of robustness checks and section VII concludes.

II. Trade, Export Diversity and Growth Determinants

II.1 Theory and Empirics

To appreciate the dichotomy between the absence of significant trade effects in growth regressions and the number of theories that relate trade to growth, we briefly summarize the trade and growth effects and their associated candidate regressors that have been suggested by different strands of trade theories. Neoclassical trade theories focus on static comparative

advantage (productivity and endowment differences) and aggregate trade volumes (see, e.g., Bernhofen, 2011). In order to control for this channel, we include in our empirical model the standard trade volume measure ("Openness"), which we filter for population and country size as in Barro (2003) and Durlauf et al. (2008). In the absence of cross-country productivity data for our sample, we also include "FDIInFlow" and "FDIOutFlow" in the robustness section VI as proxies for productivity.

Strategic Trade models rely instead on monopolistic competition where export product differentiation is crucially affected by market size (e.g., Dixit and Norman, 1980, and Krugman, 1980). In this literature, scale economies allow larger markets to produce and export a greater quality/variety of goods. Hence we include below country size ("lLand") and population ("lPop") as determinants for diversity. Country size has also previously been linked to export diversity in empirical studies (e.g. Hummels and Klenow, 2005). Strategic Trade models are thus the first to provide a clear justification for focusing on sectoral export diversity instead of aggregate measures of trade and productivity.

New Trade theories rely on dynamic sectoral reallocation and growth in quality and/or variety via sectoral spillovers in innovation, learning, or knowledge capital investment (Young, 1991, Rivera-Batiz and Romer, 1991, and Grossman and Helpman, 1991). These theories link export diversity to growth accelerations via the extensive margin, since new sectors generate additional learning, spillovers, and incentives to invent additional varieties or better qualities that increase real incomes in perpetuity. Here it is important to note that the predicted effect of diversity on growth may be neither linear nor monotone, depending on the extent of cross-country knowledge spillovers. Laggard countries may well experience growth reductions when trade shifts production towards less dynamic sectors in terms of learning, spillover or R&D intensive goods. Such spillovers are facilitated by a country's level of human capital ("Education") which we include as control below.

The next generation of "New-New" Trade theories links export diversity to heterogeneity in firms' productivities (e.g., Feenstra and Kee, 2008, and Baldwin and Robert-Nicoud, 2008). Feenstra and Kee (2008) highlight the positive link between export diversity (the share of exporting firms), income and average sectoral productivity. If exporting firms are more productive than only domestically active firms, a greater share of exporters (or varieties)

increases productivity and income in an economy. While sectoral productivity data is not available for our global sample to implement the Feenstra and Kee's hypothesis, we can capture the dynamic evolution of exports by considering countries' extensive trade margins. As in the case of New Trade theories, heterogeneous firm trade models do not predict a uniform impact of export diversity on growth across development stages. In particular, the positive impact of export diversity on sectoral TFP levels is decreasing with income as long as export revenues raise domestic GDP at a declining rate.[8] This condition is more likely to hold in more developed economies which rely less on export revenue to stimulate internal demand. In addition, Baldwin and Robert-Nicoud (2008) show that if productivity is modeled endogenously in a heterogeneous firm environment, the relation between trade, export diversity and growth depends on the evolution of the cost of innovation as a country grows richer. Economic growth might slow or accelerate depending upon the impact of trade and diversity on the marginal cost of innovation.

Alternative channels that suggest links between export diversity and economic growth are based on primary export reliance, output volatility, or preferential trade agreements. Prebisch (1950) and Singer (1950) highlight the detrimental effects of excessive specialization in primary exports and deteriorating terms-of-trade on economic development. Hence we also include primary export shares ("PrimaryX"), the terms-of-trade ("TOT") and terms-of-trade volatility ("TOTVolatility") as controls in our robustness analysis below. Koren and Tenreyro (2007) find that GDP is much more volatile in poor countries which specialize in fewer and more volatile sectors. In a similar vein, Raddatz (2011) suggests that export diversity insures against exchange rate variability. To account for these channels, we consider in our robustness analysis the real effective exchange rate ("REER"), as well as measures of exchange rate volatility ("FXVolatility") and output volatility ("GDPVolatility"). In addition, we control for potential effects of bilateral and multilateral preferential trade agreements ("WTO" and "PTA"). Even though trade agreements are not part of standard growth regression frameworks, we include variables that capture WTO and PTA membership to rule out that any diversity effects may be driven by membership-induced tariff reductions.

Finally, note that the traditional "Openness" measure and "PrimaryX" are predicted to simultaneously exert an impact on both export variety and the evolution of incomes. From an

[8] This result emerges when differentiating relative sectoral TFP, as given by equation (32) in Feenstra and Kee (2008), with respect to domestic export diversity (M_{ixt}^{h}) and the domestic sectoral GDP share, s_{it}^{h}.

econometric perspective, it is therefore possible that any export diversity effect on growth is amplified by either of these variables, which could be missed when not properly accounting for potential interlinkages. We therefore also test below whether "Openness" and "PrimaryX" act as hidden catalysts for potential export diversity effects on growth.

II.2 Measuring Export Diversity and Additional Covariates

As our discussion shows, dynamic and static trade models provide diverse trade and growth channels that might differ in importance depending on a country's level of development. The importance of trade for growth is then best captured by examining sectoral export diversity, since it allows for a disaggregation of trade flows to account for dynamic trade effects. To quantify the effect of sectoral export expansion on growth, we use the extensive margin measure suggested by Hummels and Klenow (2005), which has the advantage of being firmly rooted in trade theory.[9] The Hummels-Klenow measure appropriately integrates new products into price indices (see Feenstra, 1994) which is crucial in dynamic sectoral studies. Specifically, the extensive margin measure for country *j*'s exports to country *n* in year *t*, EM_{jnt}, is given by:

$$EM_{jnt} = \frac{\sum_{i \in I_{jnt}} X_{knit}}{\sum_{i \in I_{kt}} X_{knit}} \qquad (1)$$

where *i* denotes a Comtrade sector, and I_{jnt} and I_{kt} are the sets of sectors in which *j* and the rest-of-the-world, *k*, have positive exports to *n* in year *t*, respectively. X_{knit} is the value of exports in sector *i* from all countries other than *j* to country *n* in year *t*. EM_{jnt} then measures the diversification of *j*'s export basket to country *n* in year *t* by calculating the share of the rest-of-the-world's exports to *n* that is contributed by the set of sectors which is also exported by *j* to *n*. The importance of each sector *i* in computing the diversity of *j*'s exports to *n* then corresponds to its share in *n*'s imports from the rest-of-the-world. To obtain a single export diversity measure for each country, we aggregate the individual EM_{jnt} measures over all markets other than *j*, N_{-jt}:

$$EM_{jt} = \prod_{n \in N_{-jt}} EM_{jt}^{a_{jnt}} \; . \qquad (2)$$

[9] Alternative measures exist (e.g., Gini, Theil and Herfindahl indices) and we shall examine their implications in our robustness analysis.

Following Hummels and Klenow (2005), a_{jnt} weighs the individual diversity measures by the logarithmic mean of country *n*'s share in country *j*'s and the rest-of-the-world's year *t* exports.[10]

Identifying the effect of export diversity on economic growth is, however, complicated by endogeneity considerations. A country's growth rate may be a key determinant of its ability to invest into R&D, which in turn drives the number of new product varieties that can be exported. To address endogeneity, we instrument our export diversity measure in the spirit of Frankel and Romer (1999) with a number of exogenous geographical features: the log of a country's land area, a dummy taking the value one for landlocked countries, and the log of a country's population.

All additional covariates and instruments used in our empirical analysis below were obtained from Durlauf et al. (2008) and the associated data update in Henderson et al. (2012). Durlauf et al. base the selection of their variables on Barro (2003), which was previously one of the most comprehensive approaches to growth determinants in a panel of countries. Durlauf et al. include proxies for seven different growth theories, including regressors suggested by I) neoclassical growth theory ("InitialGDP", "PopulationGrowth", "Investment", and "Education"). We follow Durlauf et al. and instrument for these four variables with one-period lagged values in the absence of available data on alternative instruments. Also included are II) proxies for demographic change ("LifeExpectancy", "Fertility") and III) theories that link macroeconomic policies to growth ("GovernmentExpeditures", "Openness" and "Inflation"). As in Durlauf et al., the latter three variables are instrumented with their respective lagged values. We also consider IV) geographical features (land area within 100km of ice-free coast – "LandNearCoastPct", percent tropical land area – "LandTropicsPct") and V) theories linking institutions to growth ("ExpropriationRisk", "ExecutiveConstraints" and "GovernanceQuality"). In addition, we include dummy variables for the English and French origin of a country's legal system ("LegalOriginsUK", "LegalOriginsFrench") and use lagged values of "ExpropriationRisk" as instrument for the current value of the same variable. VI) Theories relating to religion and growth are proxied using the shares of all major religions in a country's population ("EasternFraction", "HinduFraction", "JewishFraction", "MuslimFraction", "OrthodoxFraction",

[10] Formally, let λ be country *n*'s share in country *j*'s overall exports at time *t*, and Λ be the rest-of-the-world's export share to *n*, then $a_{jnt} = \{(\lambda - \Lambda)/(\ln\lambda - \ln\Lambda)\} \Big/ \sum_{n \in N_{-jt}} \{(\lambda - \Lambda)/(\ln\lambda - \ln\Lambda)\}$.

"ProtestantFraction" and "OtherReligionsFraction"). As Durlauf et al., we use the respective religious shares in 1900 as instruments. Finally, we also include regressors capturing VII) theories that predict a detrimental effect of ethnic tensions on growth (using "LinguisticFractionalization" and "EthnicFractionalization" indices). Exact definitions and sources of each variable are provided in the appendix.

III. Model Uncertainty and Endogeneity

Competing growth theories and their associated candidate regressors have given rise to a sizable literature that seeks to identify robust growth determinants. Early approaches used Leamer's (1978) Extreme Bound Analysis (see Levine and Renelt, 1992, and Sala-i-Martin, 1997), which suffers from arbitrary robustness thresholds for the extreme bounds. Subsequent approaches employ Bayesian Model Averaging, which was developed specifically to address model uncertainty empirically (Fernandez at al., 2001, Brock and Durlauf, 2001, Sala-i-Martin et al., 2004, Ciccone and Jarocinski, 2010, and Eicher et al., 2011). None of the above approaches tackle endogeneity, however, since the nested nature of the Instrumental Variable (IV) estimation poses challenges for direct model comparisons.

A number of different econometric approaches have since been designed to address endogeneity and model uncertainty simultaneously. Durlauf et al. (2008), Cohen-Cole et al. (2009) and Durlauf et al. (2012) consider approximations of marginal likelihoods in a framework similar to two-stage least squares. Lenkoski et al. (2014) continue this development with an Instrumental Variable Bayesian Model Averaging (IVBMA) methodology, which uses a framework developed by Kleibergen and Zivot (2003) and a two-stage extension of the unit information prior (Kass and Wasserman, 1995). A similar approach has been developed by Chen et al. (2009). Moral-Benito (2012) considers a likelihood function for dynamic panel models, which Moral-Benito (2012b) extends to models with weakly exogenous regressors that are combined with BMA techniques. Koop et al. (2012) develop a Bayesian IV methodology based on a Reversible Jump Markov Chain Monte Carlo algorithm which may, however, encounter significant mixing difficulties. Karl and Lenkoski (2012) introduce Conditional Bayes Factors for model comparison and resolve these mixing difficulties by using a MC3-Within-Gibbs search

algorithm. Below we sketch the Lenkoski et al. (2014) approach in the interest of providing intuition on how BMA can be extended to resolve endogeneity.

The IVBMA estimator by Lenkoski et al. (2014) functions as a two-step BMA procedure where final model weights take into account uncertainty in both stages. Traditionally, endogeneity is addressed by applying 2SLS and certifying over-identification and instrument restrictions in the canonical setup

$$y = \beta' \begin{pmatrix} w \\ x \end{pmatrix} + \eta, \tag{3}$$

$$w = \theta_z' z + \theta_x' x + \varepsilon, \tag{4}$$

where y is the dependent variable, x is a set of covariates, w is the set of endogenous variables, and z is the set of instruments. The x and θ_x are of dimension p_x, and z and θ_z have dimension p_z. To simplify the exposition, we assume that w is univariate. Assuming that

$$\begin{pmatrix} \eta \\ \varepsilon \end{pmatrix} \sim N\left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\eta^2 & \sigma_{\eta\varepsilon}^2 \\ \sigma_{\eta\varepsilon}^2 & \sigma_\varepsilon^2 \end{pmatrix} \right), \tag{5}$$

the classical endogenous variable situation arises when $\sigma_{\eta\varepsilon}^2 \neq 0$, causing w to violate the regression assumption of independence of the error term, η. The determination of w then leads to inconsistent estimates of the entire coefficient vector, β. 2SLS solves the consistency problem, but relies on the existence of a set of instrumental variables (IV), z, which are independent of y, given w and the vector of covariates, x. The IV-based estimates, $\beta_{IV} = (\overline{w}'\overline{w})^{-1}\overline{w}'y$, obtained using the fitted values from the first stage, $\overline{w}$, are consistent if the conditional independence assumptions are valid.

Intuitively, IVBMA combines the IV and BMA methodologies. It processes the data much like a two-stage least square estimator while also addressing model uncertainty in both stages. The first stage is a straight BMA application to identify effective instruments. Let Δ be a quantity of interest and let the set of potential models in the first stage, $\widetilde{M}$, be comprised of $\widetilde{M}_i \in \widetilde{M}$ individual models. The posterior distribution of Δ conditional on the data, D, is then

given by the weighted average of the predictive distribution under each model, using as weights the models' corresponding posterior probabilities:

$$pr(\Delta \mid D) = \sum_{\widetilde{M}_i \in \widetilde{M}} pr(\Delta \mid \widetilde{M}_i, D) pr(\widetilde{M}_i \mid D), \qquad (6)$$

where $pr(\Delta \mid \widetilde{M}_i, D)$ is the predictive distribution and $pr(\widetilde{M}_i \mid D)$ is the posterior model probability of model $\widetilde{M}_i$. The posterior model probability, $\widetilde{\pi}_i$, for each model in the first stage is given by

$$\widetilde{\pi}_i = pr(\widetilde{M}_i \mid D) \propto pr(D \mid \widetilde{M}_i) pr(\widetilde{M}_i), \qquad (7)$$

where

$$pr(D \mid \widetilde{M}_i) = \int pr(D \mid \theta_i, \widetilde{M}_i) pr(\theta_i \mid \widetilde{M}_i) d\theta_i \qquad (8)$$

is the integrated likelihood of model $\widetilde{M}_i$ with model parameters θ_i. The prior densities for parameters and models are given by $pr(\theta_i \mid \widetilde{M}_i)$ and $pr(\widetilde{M}_i)$, respectively. The posterior mean of the model parameters in stage 1 is then

$$\hat{\theta}_{BMA} = \sum_{\widetilde{M}_i \in \widetilde{M}} \hat{\theta}_i \widetilde{\pi}_i, \qquad (9)$$

which is given by the average of the parameter estimates from each model, $\hat{\theta}_i$, weighted by their respective posterior model probabilities. Similarly, the posterior variance can be calculated as

$$\hat{\sigma}^2_{BMA}[\theta] = \sum_{\widetilde{M}_i \in \widetilde{M}} \widetilde{\pi}_i \ \hat{\sigma}_i^2 + \sum_{\widetilde{M}_i \in \widetilde{M}} \widetilde{\pi}_i \ \left(\hat{\theta}_i - \hat{\theta}_{BMA}\right)^2 . \quad (10)$$

The variance has a clear interpretation that highlights how model uncertainty is accounted for by standard errors of the BMA methodology. The first term in (10) is the weighted variance for each model, $\hat{\sigma}_i^2 = Var(\hat{\theta}_i \mid \widetilde{M}_i, D)$, summed over all relevant models, and the second term indicates how stable the estimates are across models. The more the estimates differ across models, the greater is the posterior variance.

The posterior distribution for a parameter is a mixture of a regular posterior distribution and a point mass at zero, which represents the probability that the parameter equals zero. The

sum of the posterior probabilities of the models that contain the variable is called the posterior inclusion probability (PIP) and can then be taken as a measure of the importance of a variable:

$$\mu_{BMA}[\theta] = pr\left(\hat{\theta} \neq 0 \mid D\right) = \sum_{\widetilde{M}_i \in \widetilde{M}_A} \widetilde{\pi}_i \,. \qquad (11)$$

where $\widetilde{M}_A$ is the set of models in the first stage in which parameter θ is not constrained to zero.

IVBMA is then a nested approach that first determines the posterior model probabilities in the first stage according to the BMA methodology, and then uses the predicted values from each model, $\overline{w}_i$, to derive the second stage model posterior model probabilities, $\pi_j[\overline{w}_i]$, and estimates, $\hat{\beta}_j[\overline{w}_i]$. The set of models in the second stage is denoted by *M*, which consists of all second stage models $M_j \in M$.

The posterior means for the second stage can then be derived to be

$$\widetilde{\hat{\beta}}_{IVBMA} = \sum_{\widetilde{M}_i \in \widetilde{M}} \sum_{M_j \in M} \widetilde{\pi}_i \pi_j[\overline{w}_i] \hat{\beta}_j[\overline{w}_i], \qquad (12)$$

which implies that the IVBMA estimate is formed as the average of the IV estimates obtained using the fitted values from each first stage model, $\widetilde{M}_i$, weighted by both the respective quality of the first and second stage specifications.

The posterior variance of $\widetilde{\hat{\beta}}_{IVBMA}$ reflects again the average variation of the estimated parameters in all models, and how estimates differ across models in both the first and second stages, just as captured by $\hat{\sigma}^2_{BMA}$ in the canonical BMA setup in (10). However, IVBMA also takes into account the model weights derived in the first stage so that the posterior variance is again weighted by the quality of its instrumenting models:

$$\widetilde{\hat{\sigma}}^2_{IVBMA}[\beta] = \sum_{\widetilde{M}_i \in \widetilde{M}} \widetilde{\pi}_i \hat{\sigma}^2_{BMA}[\beta[\overline{w}_i]] + \sum_{\widetilde{M}_i \in \widetilde{M}} \widetilde{\pi}_i \left(\hat{\beta}_{i,BMA}[\overline{w}_i] - \widetilde{\hat{\beta}}_{IVBMA} \right)^2 . \qquad (13)$$

The posterior variance of IVBMA estimates can be again decomposed into two parts. The first term in (13) is the average of the second stage BMA variances associated with a particular first stage model $\widetilde{M}_i$. The second term indicates the stability of the individual BMA estimates obtained with particular first stage models relative to the IVBMA estimate. Therefore, results

generated by underperforming instrument models are deemphasized, while those based on strong instrument models receive relatively high posterior weights.

A similar interpretation holds for the IVBMA posterior inclusion probabilities:

$$\mu_{IVBMA}[\beta] = pr(\hat{\beta} \neq 0 \mid D) = \sum_{\widetilde{M}_i \in \widetilde{M}} \sum_{M_j \in M_A} \widetilde{\pi}_i \pi_j \left[\overline{w}_i\right] \qquad (14)$$

where M_A indicates the subset of second stage models for which the coefficient β is not constrained to zero. Standard rules of thumb for interpreting μ_{IVBMA} have been provided by Kass and Raftery (1995). They establish the following effect-thresholds: < 50% evidence against the effect, 50-75% weak evidence for the effect, 75-95% positive evidence, 95-99% strong evidence, and > 99% decisive evidence.

IV. Data

The dataset is an unbalanced panel of 84 countries from 1965 to 2009. Using 5-year periods, the dataset comprises 589 country-period observations. To extend the datasets of Durlauf et al. (2008) and Henderson et al. (2012), we use government expenditures as share of GDP instead of government expenditures net of education and military expenditures. In addition, the Durlauf et al. "Cheque" data on legal procedures required to collect a bounced check is only available for a limited set of countries from the World Bank Doing-Business Indicators. Djankov et al. (2003) and La Porta et al. (2008) document the strong empirical relationship between legal origin and current legal procedures and standards, hence we substitute "LegalOrigins" (French and English) for the "Cheque" variable in our regressions.

Since our focus is on the relationship between diversity and growth, we exclude resource-rich economies from our analysis (specifically countries that generate more than 20 percent of their GDP from resource rents as reported by the World Development Indicators). Resource-rich countries represent sizable outliers with unusually low export diversity and uncommonly high income levels. Neither the extension of the dataset beyond the original Durlauf et al. data nor the exclusion of resource rich countries affects our results qualitatively.

The dependent variable in our analysis is average per capita GDP growth over each 5-year period. Growth rates were calculated using data on per capita incomes from the Penn World

Tables versions 6.2 (1965-2004) and 7.1 (2005-2009). To control for spatial and time effects on growth, we also include period and regional dummies: "SubSaharanAfrica", "EastAsia" and "LatinAmerica" (including the Caribbean). To construct the Hummels and Klenow (2005) extensive margin measure of export diversification, we use trade data from Feenstra et al. (2005) (4-digit SITC 1965-1989) and from the UN Comtrade database (6-digit HS 1990-2009).[11] Sectoral exports for both classifications were compiled using mirror import data.

In our robustness section we also provide estimates based on alternative export diversity indicators that have been employed by the previous literature, specifically the "Herfindahl", "Gini", "Total Theil", "Between Theil", and "Within Theil" indices (see Cadot et al., 2011, for a survey). Each index captures slightly different dimensions of export diversification. The "Herfindahl" index measures the concentration of export shares, while the "Gini" and "Total Theil" indices assess export diversification based on the equality of export shares across sectors. The "Total Theil" index is composed of the "Between Theil" and the "Within Theil" indices. The "Between Theil" index measures export diversification based on the extensive margin, while the "Within Theil" index captures export diversification on the basis of the intensive margin (how equally exports are distributed across active export lines, independent of the actual of number of export sectors). While these diversity measures are similar in nature to the Hummels-Klenow diversity measure, the "Within Theil" index adds one distinctly different diversity dimension by examining to what extent export volumes in different sectors evolve similarly over time. To ensure comparability, all diversity measures are normalized to range from zero to unity.

Finally, we construct an entirely new "Clustered" diversity measure to control for potential measurement errors in the UN Comtrade database. It is well known that the database features arbitrary and misleading sector classifications in the HS and SITC nomenclatures, as data collection was designed to monitor tariff collection and not to disaggregate trade flows (see Cadot et al., 2011). Measurement errors in the database are relevant for studies of export diversity when sector classifications contain excessively irrelevant or insufficiently differentiated

[11] Trade data in the more detailed 6-digit HS nomenclature is not available before 1988. Although not reported in the results section below, we also estimated our baseline specification controlling for a potential structural break in the export diversity measure. We do not find evidence for a structural break around 1990. Nor do we find that observations pre or post 1990 drive our results. Detailed result tables are available on request.

sectors.[12] Our new diversity measure clusters the 4-digit SITC and 6-digit HS exports by the similarity of their production processes. Using the 2002 US benchmark Input-Output table from the US Bureau of Economic Analysis, we employ complete-linkage clustering to aggregate individual export sectors into clusters that share similar input structures (as measured by the Euclidian distance in input shares between sectors). The sensitivity of the complete-linkage algorithm can be adjusted from a Euclidian distance of 0 (replicating the original SITC/HS sectors) to 1 (all exports are aggregated into a single cluster). Choosing a Euclidian distance of 0.1 as input similarity cutoff, we generate 481 clusters (296 for pre-1990) to calculate our "Clustered" Hummels-Klenow diversity measure. Above a cutoff of 0.1, the algorithm quickly leads to an excessive aggregation to only a handful clusters that generate rather meaningless diversity indices.

V. Export Diversity and GDP Growth Across Stages of Development

We begin our empirical analysis by introducing export diversity into a canonical OLS growth determinant regression. Then we examine the importance of endogeneity using 2SLS. Finally, we address model uncertainty and endogeneity simultaneously by applying IVBMA. We conclude by exploring the robustness of our results, allowing for alternative export diversity measures and additional controls that explore different channels through which export diversity might impact GDP growth.

V.1 OLS Baseline Results

The OLS results provide a baseline comparison with previous growth determinant studies. Column 1 in Table 1 reports results without export diversity for our extended panel, producing roughly comparable results to Barro's (2003) shorter panel. As expected, "InitialGDP", "Investment" and "PopulationGrowth" are significant – all variables suggested by the neoclassical model. Institutional factors also matter, as indicated by the significant effects of "GovernanceQuality", "GovernmentExpenditures" and "ExecutiveConstraints". Finally, we replicate the importance of religious measures in Barro (2003), as both "JewishFraction" and "ProtestantFraction" are significant. The "Openness" trade measure is marginally significant as

[12] For example, "Women's Suits" HS6204 and "Women's Suits knitted" HS6104 contain 50 different sectors at the six-digit level, while "Machinery Parts Without Electrical Connectors" HS8485 contains only two six-digit subsectors ("Ships' Propellers" HS 848510 and "All Other Non-electrical Machinery Parts" HS 848590).

in Barro (2003) and Durlauf et al. (2008) who found that the weak trade effect disappeared once they controlled for endogeneity.

Column 2 in Table 1 adds export diversity to the standard growth regression. It is insignificant in the global OLS regression and the other growth determinates are largely unchanged. The result is not surprising given the partial correlation between growth and export diversity in the global sample (Figure 1a). On the other hand, we find that the effect of diversity on growth varies substantially with income (Table 1, Column 3).[13] In the presence of the country-income dummy variables, the main diversity coefficient represents the effect of diversity on growth for high income countries (the omitted country-income dummy). To obtain the effect of diversity on growth for the other country-income categories, we construct composite coefficients that represent the effect of diversity on growth for each remaining income category. These composite coefficients ("Diversity [LowIncome]", "Diversity [LowerMedIncome]", "Diversity [UpperMedIncome]") are based on the main effect of "Diversity" and its interaction with the respective country-income coefficient. The economic effect of diversity, as well as its statistical significance, decline with development, just as we observe in the partial correlations in Figures 1b-1d. The economic effect of diversity on low income countries is sizable, implying that a one standard deviation increase in export diversity raises average annual growth in low income countries by just about 1 percentage point.[14]

V.2 2SLS: Controlling for Endogeneity

As outlined in section II, there is ample evidence for feedback effects from growth to trade and in this section we control for endogeneity by implementing a standard 2SLS approach. Column 4 in Table 1 acknowledges not only the endogeneity of trade, but also the potential endogeneity of 18 other growth determinants whose respective instruments were described in Section II.[15] Given

[13] The income classifications are coded according to the 1988 World Bank classification (the midpoint of our sample period). Our export diversity results are nearly identical when we use a contemporaneous income classification where countries switch in and out of the income categories. We also estimated a specification in which we fixed countries' income categories at the time they first entered our panel (1965 or the earliest year thereafter) and we still find evidence for a positive effect of export diversity on economic growth in low income countries (although weaker). Diversity effects by income classification are calculated as the sum of the main export diversity coefficient and the respective country-income interaction with the diversity term. The standard errors of the composite coefficients are calculated using the Delta Method.

[14] The coefficient of 0.062 and the 0.16 standard deviation of export diversity for low income countries imply that a one standard deviation increase in diversity will increase growth by 100x0.062x0.16 = 0.992%.

[15] Following Durlauf et al. (2008), the endogenous regressors are "InitialGDP", "Investment", "PopulationGrowth", "Education", "Openness", "ExecutiveConstraints", "GovernmentExpenditures", "Inflation", "HinduFraction",

the sizable number of endogenous regressors, we report the Angrist-Pischke test statistics that indicate whether a particular endogenous regressor is identified. The Angrist-Pischke first-stage chi-squared and F-statistics are tests of underidentification and weak identification, respectively, which are both rejected at the 5 percent level for all endogenous variables in our specification. The Sargan-Hansen J-Statistic rejects instrument validity, indicating that more parsimonious instrumentation specifications may be preferable.[16]

In terms of significance, the 2SLS results in column 4 mostly overlap with the OLS results in column 3. Only "Investment", "ExecutiveConstraints" and "EasternReligionFraction" lose significance in the 2SLS approach. The loss of significance for "Investment" is worrisome but not surprising. While "Investment" is seen as a universal growth determinant in theory, previous panel studies (e.g., Durlauf et al., 2008, and Barro, 2003) also find that its significance decreases substantially after controlling for endogeneity. Note that "Investment" is insignificant only when we control for endogeneity, but before we address model uncertainty. Export diversity remains significant for low (and upper medium) income countries.

V.3 Model Uncertainty, Endogeneity and Export Diversity

The set of candidate regressors in growth regressions is always an amalgam of variables suggested by a multitude of growth theories. Hence, it is important to control not only for endogeneity but also for the associated uncertainty whether a regressor suggested by a particular theory captures the true underlying growth process. Here it is important to note that single regressions cannot account for the uncertainty surrounding the validity of a particular empirical model. While an extensive literature on model uncertainty in growth regressions exists, only Durlauf et al. (2008) account simultaneously for endogeneity and model uncertainty (in the second stage only). Using IVBMA, we examine whether export diversity exerts an effect on growth, even after controlling for endogeneity and model uncertainty.[17]

"EasternReligionFraction", "OrthodoxFraction", "MuslimFraction", "OtherReligionsFraction", "JewishFraction", "ProtestantFraction", "Diversity", and "Diversity" with three income interactions. Our instruments follow directly from Barro (2003) and Durlauf et al. (2008).

[16] A formal Bayesian test for weak instruments does not exist. Lenkoski et al. (2014) suggest a simple and direct approach based on the instruments' inclusion probabilities. IVBMA addresses the issue of weak instruments by providing negligible inclusion probabilities and low posterior model weights to models with weak instruments.

[17] To implement IVBMA, we use Lenkoski's IVBMA R-package, which relies on a MC3-Within-Gibbs sampler, a uniform model prior and an inverse Wishart prior over the parameter space, see Karl and Lenkoski (2012). The

Column 5 in Table 2 presents our first IVBMA results with the canonical growth determinants but without export diversity, while columns 6 and 7 add the linear and nonlinear diversity specifications.[18] In addition to posterior inclusion probabilities (PIP), we also report conditional means and standard deviations to facilitate comparisons with the OLS and 2SLS estimates above. The posterior inclusion probabilities identify the likelihood that a coefficient has a non-zero effect on the dependent variable. Column 5 indicates that IVBMA results are much more parsimonious than the 2SLS and OLS specifications. "JewishFraction", "HinduFraction", "OrthodoxFraction", "EasternReligionFraction", "ExecutiveConstraints", "LegalOriginsUK", "Fertility", "Openness" and "LandNearCoastPct" no longer exert an effect on growth. Instead only the traditional growth determinants exhibit the highest effect-thresholds: "InitialGDP", "GovernanceQuality", "Investment", "GovernmentExpenditures" and "PopulationGrowth" in addition to "LegalOriginsFrench", "ProtestantFraction", "Inflation" and "SubSaharanAfrica". Adding export diversity in column 6 of Table 2 hardly changes the growth determinants. But once we control for nonlinearities in column 7, we find that export diversity has a decisive impact on growth for low income countries. A one standard deviation increase in export diversity raises growth by about 1.1 percentage points for low income economies. Moreover, the IVBMA-Sargan test outlined in Lenkoski et al. (2014) indicates instrument validity for all IVBMA specifications.

At this stage, it is important to contrast the IVBMA and 2SLS results to highlight the importance of controlling for both endogeneity and model uncertainty simultaneously. Of the 14 growth determinants suggested by 2SLS (Table 1, column 4), only 8 find support once we also control for model uncertainty (Table 2, column 7). In addition, the IVBMA approach assigns an effect to two additional regressors that were not found to be effective in the 2SLS approach: "Investment" and the "LowIncomeDummy". The set of growth determinants identified by IVBMA is much more parsimonious and the significant effects of "InitialGDP", "GovernanceQuality", "Investment", "PopulationGrowth" and "GovernmentExpenditures" provide support for both the neoclassical growth model as well as new growth theories that rely on productive government expenditures and the quality of institutions. Most importantly, we

computational burden of one run with 30,000 iterations after discarding 3,000 burn-ins is 4 hours. We experimented with substantially more iterations which result in identical estimates, indicating the sampler's rapid convergence.

[18] While there is some discussion about the issue how interactions enter the BMA model space (see Crespo Cuaresma, 2011, and Papageorgiou, 2011), we impose no restrictions.

document the crucial effect of trade, through export diversity, that drives growth in low income countries.

VI. Robustness

In this section, we examine whether our results are sensitive to a) the use of different export diversity measures, b) the inclusion of additional control variables that might lower the explanatory power of export diversity, and c) alternative channels through which export diversity might affect growth. As discussed in section IV, a number of alternative export diversity indices have been suggested in the literature. Although all measures identify different dimensions of sectoral export diversity, we show that our IVBMA growth determinants and the effect of export diversity on growth are remarkably stable across specifications. We also confirm that our results are robust to the simultaneous inclusion of the extensive and intensive margins of trade, although we will show that the extensive margin dominates. Then we examine growth determinants that might negate the explanatory power of export diversity and check if their omission may have introduced omitted variable bias. Specifically, we investigate whether controlling for the effects of trade agreements, WTO membership, output volatility, primary exports, the real exchange rate and a country's terms-of-trade negates the effect of export diversity on growth. In all cases, our previous findings are robust. Finally, we examine alternative channels which might amplify the effect of export diversity on growth (specifically trade openness and primary export shares). We show that export diversity drives growth in low income economies independent of countries' trade volumes, while countries relying on primary exports can particularly benefit from diversification.

VI.1 Alternative Diversity Measures

Table 3 presents IVBMA results for six alternative export diversity measures to document the robustness of our baseline specification. Column 8 reports estimates for the "Clustered" export diversity measure discussed in section IV, which are just about identical to those produced by our baseline (Table 2, column 7). This result indicates that the arbitrary nomenclatures of the UN Comtrade database do not drive our findings. Columns 9-13 present results for the "Herfindahl", "Gini" and "Theil" indices, which are very similar to column 8, the only difference being that the Herfindahl index also attributes a weak effect to a country's "ProtestantFraction".

VI.2 Intensive versus Extensive Margins

Table 4 presents results that control for the intensive rather than the extensive margin of exports. Since a number of studies point out that existing export lines are crucial drivers of trade growth (see Felbermayr and Kohler, 2006, Helpman et al., 2008, and Amiti and Freund, 2010), we also calculate a measure of export diversity based on the intensive margin ("IntensiveMarginDiversity") following Hummels and Klenow (2005, p. 710-711). Again, the results are very similar to our baseline. Column 14 in Table 4 shows that "IntensiveMarginDiversity" indeed matters for low income countries, but the effect vanishes once we include our preferred measure of diversity based on the extensive margin ("Diversity") in column 15. Thus, low income countries are pushed up the development ladder by the diversity of their export sectors, and not by the similarity of their active export sectors' trade volumes.

VI.3 Additional Control Variables

The candidate regressors that are included in our baseline specification were motivated by traditional growth determinant studies. Table 5 introduces additional control variables that are specifically linked to export diversity, as discussed in section II. Their omission might lead to omitted variable bias resulting in an overstatement of the explanatory power of export diversity on growth. Columns 16-18 in Table 5 add WTO membership ("WTO"), membership in Preferential Trade Agreements ("PTA"), primary export shares ("PrimaryX"), output volatility ("GDPVolatility"), the real effective exchange rate ("REER"), real exchange rate volatility ("FXVolatility"), terms-of-trade ("TOT") and TOT volatility ("TOTVolatility"). All additional covariates are treated as exogenous and their inclusion does not change our previous result that export diversity drives growth in low income countries. Neither of the new variables is identified as key growth determinant, with the exception of "FXVolatility", which is shown to exert a decisive effect on growth. The inclusion of "FXVolatility" does not, however, affect the diversity-growth relationship. Finally, column 19 introduces "FDIInFlow" and "FDIOutFlow" to proxy for countries' global TFP exposure. Only "FDIInFlow" exerts an effect on growth, but the diversity-growth relationship is again robust.

VI.4 Diversity Catalysts

The effect of diversity might be driven by a third regressor, which would then be the underlying catalyst of growth. In section II, we motivate how trade openness and primary exports may exert

an effect on both diversity and growth. By interacting diversity with "PrimaryX" and "Openness", we can examine if the diversity effect is indeed operating through either of these two potential catalysts. When interacting diversity and openness (Table 6, column 20), we find no change in our core results, including the estimated coefficient magnitudes. Trade openness does not drive the export diversity effect on growth in low income countries. Using "PrimaryX" and "Diversity" interactions, column 21 examines the Prebisch-Singer hypothesis that reliance on primary exports (implying lower diversity) impacts growth. The positive and significant effect for the interaction of "PrimaryX" with "Diversity" and the "LowIncomeDummy" provides evidence that the diversity-growth relationship for low income countries is indeed partly operating through primary exports. The greater the primary export reliance of a low income country, the larger is the growth impact of diversification.

VII. Concluding Remarks

We reexamine the effect of trade on growth by conducting a detailed analysis of the impact of sectoral exports. Since previous empirical studies of growth determinants did not find a robust trade effect, we introduce disaggregate exports to examine the impact of sectoral export diversity on growth. Using Hummels and Klenow's (2005) measure of export diversity, we find decisive evidence that export diversification is a key determinant of growth in low income countries, an effect that weakens and eventually vanishes with development. Our findings are robust to the two major caveats that are generally encountered in growth regressions: endogeneity and model uncertainty. Our results are also robust to the inclusion of at least five alternative export diversification measures and a number of variables that have been suggested as potential drivers of export diversity.

The benefits of export diversity for growth are thus greatest in the early stages of development. As development progresses, export diversification is shown to be a by-product of prosperity but not its cause. Export diversity could drive growth in low income countries through several channels. More diversified economies are, for instance, better insured against idiosyncratic sectoral shocks, especially at the early stages of development when countries export only few products. Finally, in the light of our results, it is of interest to note the finding of Besedes and Prusa (2011) that the extensive margin growth in developing countries is less stable

than in developed economies. Since we consider 5-year averages, our findings suggest that short-run fluctuations in export diversity are less important for low income countries than the steady diversification of exports over the long run to successfully climb the development ladder.

References

Amiti, Mary and Freund, Caroline (2010). "The Anatomy of China's Export Growth." In: Feenstra, Robert C. and Wei, Shang-Jin (eds), *China's Growing Role in World Trade* The University of Chicago Press: 35-56.

Baldwin, Richard E. and Robert-Nicoud, Frédéric. (2008). "Trade and Growth With Heterogeneous Firms." *Journal of International Economics,* 74(1), 21-34.

Barro, Robert J. (2003). "Determinants of Economic Growth in a Panel of Countries." *Annals of Economics and Finance*, 4, 231-274.

Bernhofen, Daniel M. (2011). "The Empirics of General Equilibrium Trade Theory." In: Bernhofen, Daniel M.; Falvey, Rod; Greenaway, David and Udo Kreickemeier (eds.), *Palgrave Handbook of International Trade*, Palgrave MacMillan: 88-118.

Besedes, Tibor and Prusa, Thomas J. (2011). "The Role of Extensive and Intensive Margins and Export Growth." *Journal of Development Economics*, 96(2), 371-379.

Brasili, Andrea; Epifani, Paolo and Helg, Rodolfo (2000). "On the Dynamics of Trade Patterns." *De Economist*, 148(2), 233-257.

Brenton, Paul and Newfarmer, Richard (2007). "Watching More Than the Discovery Channel: Export Cycles and Diversification in Development." *World Bank Policy Research Working Paper 4302*.

Brock, William A. and Durlauf, Steven N. (2001). "What Have We Learned From a Decade of Empirical Research on Growth? Growth Empirics and Reality." *World Bank Economic Review*, 15(2), 229-272.

Cadot, Olivier; Carrère, Céline and Strauss-Kahn, Vanessa (2011). "Export Diversification: What's Behind the Hump?" *Review of Economics and Statistics*, 93(2), 590-605.

Chen, Huigang; Mirestean, Alin and Tsanarides, Charalambos (2009). "Limited Information Bayesian Model Averaging for Dynamic Panels with Short Time Periods." *IMF Working Paper WP/09/74*.

Ciccone, Antonio and Jarocinski, Marek (2010). "Determinants of Economic Growth: Will Data Tell?" *American Economic Journal: Macroeconomics*, 2(4), 222-246.

Cohen-Cole, Ethan; Durlauf, Steven; Fagan, Jeffrey and Nagin, Daniel (2009). "Model Uncertainty and the Deterrent Effect of Capital Punishment." *American Law and Economics Review*, 11(2), 335-369.

Crespo Cuaresma, Jesus (2011). "How Different Is Africa? A Comment On Masanjala and Papageorgiou." *Journal of Applied Econometrics*, 26(6), 1041-1047.

De Benedictis, Luca; Gallegati, Marco and Tamberi, Massimo (2009). "Overall Trade Specialization and Economic Development: Countries Diversify." *Review of World Economics*, 145(1), 37-55.

Dixit, Avinash K. and Norman, Victor D. (1980). *Theory of International Trade: A Dual, General Equilibrium Approach*. Cambridge, England: Cambridge University Press.

Djankov, Simeon; La Porta, Rafael; Lopez-de-Silanes, Florencio and Shleifer, Andrei (2003). "Courts." *Quarterly Journal of Economics*, 118(2), 453-517.

Durlauf, Steven N.; Kourtellos, Andros and Tan, Chih Ming (2008). "Are Any Growth Theories Robust?" *Economic Journal*, 118 (March), 329-346.

Durlauf, Steven N.; Kourtellos, Andros and Tan, Chih Ming (2012). "Is God in the Details? A Reexamination of the Role of Religion in Economic Growth." *Journal of Applied Econometrics*, 27(7), 1059-1075.

Edwards, Sebastian (1993). "Openness, Trade Liberalization, and Growth in Developing Countries." *Journal of Economic Literature*, 31(3), 1358-1393.

Eicher, Theo S.; Papageorgiou, Chris and Raftery, Adrian E. (2011). "Default Priors and Predictive performance in Bayesian Model Averaging, with Application to growth Determinants." *Journal of Applied Econometrics*, 26(1), 30-55.

Eris, Mehmet N. and Ulasan, Bülent (2013). "Trade Openness and Economic Growth: Bayesian Model Averaging Estimate of Cross-country Growth Regressions." *Economic Modelling*, 33, 867-883.

Feenstra, Robert C. (1994). "New Product Varieties and the Measurement of International Prices." *American Economic Review*, 84(1), 157-177.

Feenstra, Robert C. and Kee, Hiau Looi (2008). "Export Variety and Country Productivity: Estimating the Monopolistic Competition Model with Endogenous Productivity." *Journal of International Economics*, 74(2), 500-518.

Feenstra, Robert C.; Lipsey, Robert E., Deng, Haiyan; Ma, Alyson C. and Mo, Hengyong (2005). "World Trade Flows: 1962-2000." *NBER Working Paper 11040*.

Felbermayr, Gabriel J., and Kohler, Wilhelm (2006). "Exploring the Intensive and Extensive Margins of World Trade." *Review of World Economics*, 142(4), 642-673.

Fernández, Carmen; Ley, Eduardo and Mark F. J. Steel (2001). "Model Uncertainty in Cross-Country Growth Regressions." *Journal of Applied Econometrics*, 16(5), 563-576.

Frankel, Jeffrey A. and Romer, David (1999). "Does Trade Cause Growth?" *American Economic Review*, 89(3), 379-399.

Funke, Michael and Ruhwedel, Ralf (2001). "Product Variety and Economic Growth: Empirical Evidence for the OECD Countries." *IMF Staff Papers*, 48(2), 225-242.

Grossman, Gene M. and Helpman, Elhanan (1991). *Innovation and Growth in the Global Economy*. Cambridge, MA: MIT Press.

Hausmann, Ricardo and Hidalgo, César A. (2011). "The Network Structure of Economic Output." *Journal of Economic Growth*, 16(4), 309-342.

Helpman, Elhanan; Melitz, Marc and Rubinstein, Yona (2008). "Estimating Trade Flows: Trading Partners and Trading Volumes." *Quarterly Journal of Economics*, 123(2), 441-487.

Henderson, Daniel J.; Papageorgiou, Chris and Christopher F. Parmeter (2012). "Growth Empirics Without Parameters." *Economic Journal*, 122 (March), 125-154.

Karl, Anna and Lenkoski, Alex (2012). "Instrumental Variable Bayesian Model Averaging via Conditional Bayes Factors." *Heidelberg University Working Paper*.

Kass, Robert E. and Raftery, Adrian E. (1995). "Bayes Factors." *Journal of the American Statistical Association*, 90(430), 773-795.

Kass, Robert E. and Wasserman, Larry (1995). "A Reference Bayesian Test for Nested Hypotheses and its Relationship to the Schwarz Criterion." *Journal of the American Statistical Association*, 90(431), 928-934.

Kehoe, Timothy J. and Ruhl, Kim J. (2013). "How Important Is the New Goods Margin in International Trade?" *Journal of Political Economy*, 121(2), 358-392.

Kleibergen, Frank and Zivot, Eric (2003). "Bayesian and Classical Approaches to Instrumental Variable Regression." *Journal of Econometrics*, 114(1), 29-72.

Koop, Gary; Leon-Gonzalez, Roberto and Strachan, Rodney (2012). "Bayesian Model Averaging in the Instrumental Variable Regression Model." *Journal of Econometrics*, 171(2), 237-250.

Koren, Miklós and Tenreyro, Silvana (2007). "Volatility and Development." *Quarterly Journal of Economics*, 122(1), 243-287.

Krugman, Paul (1980). "Scale Economies, Product Differentiation, and the Pattern of Trade." *American Economic Review*, 70(5), 950-959.

La Porta, Rafael; Lopez-de-Silanes, Florencio and Shleifer, Andrei (2008). "The Economic Consequences of Legal Origins." *Journal of Economic Literature*, 46(2), 285-332.

Leamer, Edward E. (1978). "Specification Searches: Ad Hoc Inference from Non-Experimental Data." New York, NY: Wiley.

Lenkoski, Alex; Eicher, Theo S. and Raftery, Adrian E. (2014). "Two-Stage Bayesian Model Averaging in Endogenous Variable Models." *Econometric Reviews,* 33(1-4), 122-151.

Levine, Ross and Renelt, David (1992). "A sensitivity Analysis of Cross-Country Growth Regressions." *American Economic Review*, 82(4), 942-963.

Melitz, Marc J (2003). "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." Econometrica, 71(6), 1695-1725.

Moral-Benito, Enrique (2012). "Determinants of Economic Growth: A Bayesian Panel Data Approach", *Review of Economics and Statistics*, 94(2), 566-579.

Moral-Benito, Enrique (2012b). "Growth Empirics in Panel Data under Model Uncertainty and Weak Exogeneity." *Bank of Spain Working Paper 1243*.

Parteka, Aleksandra (2010). "Employment and Export Specialisation Along the Development Path: Some Robust Evidence." *Review of World Economics*, 145(4), 615-640.

Papageorgiou, Chris (2011). "How To Use Interaction Terms In BMA: Reply To Crespo Cuaresma's Comment On Masanjala And Papageorgiou (2008)." *Journal of Applied Econometrics*, 26(6), 1048-1050.

Papageorgiou, Chris and Spatafora, Nikola (2012). "Economic Diversification in LICs: Stylized Facts and Macroeconomic Implications." *IMF Staff Discussion Note SDN/12/13*.

Prebisch, Raul (1950). *The Economic Development of Latin America and its Principal Problems*. New York: United Nations.

Proudman, James and Redding, Stephen (2000). "Evolving Patterns of International Trade." *Review of International Economics*, 8(3), 373-396.

Raddatz, Claudio (2011). "Over the Hedge: Exchange Rate Volatility, Commodity Price Correlations and the Structure of Trade." *World Bank Policy Research Working Paper 5590*.

Raftery, Adrian E. (1995). "Bayesian Model Selection in Social Research." *Sociological Methodology*, 25, 111-163.

Raftery, Adrian E. and Zheng, Yingye (2003). "Discussion: Performance of Bayesian Model Averaging." *Journal of the American Statistical Association*, 98, 931-938.

Rivera-Batiz, Luis A. and Romer, Paul M. (1991). "Economic Integration and Endogenous Growth." *Quarterly Journal of Economics*, 106(2), 531-555.

Rodriguez, Francisco and Rodrik, Dani (2001). "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence." In: Bernanke, Ben S. and Rogoff, Kenneth (eds.), *NBER Macroeconomics Annual 2000*.

Sachs, Jeffrey D. and Warner, Andrew (1995). "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity*, Vol. 1, 1-118.

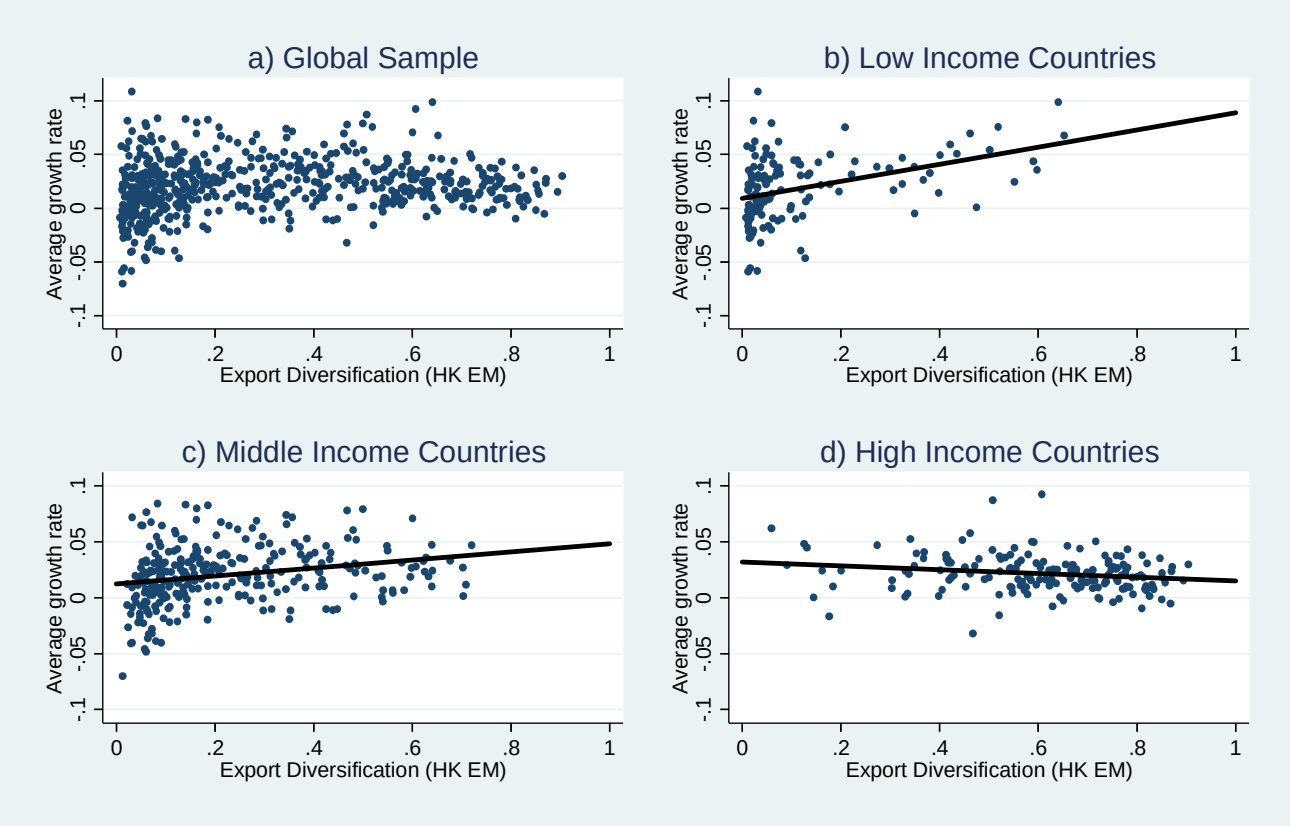
Sala-i-Martin, Xavier X. (1997). "I Just Ran Two Million Regressions." *American Economic Review Papers and Proceedings*, 87(2), 178-183.

Sala-i-Martin, Xavier X.; Doppelhofer, Gernot and Miller, Ronald I. (2004). "Determinants of Long-Term Growth: A Bayesian Averaging of Classical Estimates (BACE)." *American Economic Review*, 94(4), 813-835.

Singer, Hans W. (1950). "The Distribution of Gains between Investing and Borrowing Countries." *American Economic Review Papers and Proceedings*, 40(2), 473-485.

Young, Alwyn (1991). "Learning by Doing and the Dynamic Effects of International Trade." *Quarterly Journal of Economics*, 106(2), 369-405.

Figure 1:
Average Growth and Export Diversity (Extensive Margin) (1965-2009)



Fitted values obtained using a linear regression of the average growth rate on a constant and the Hummels-Klenow export diversity measure.

Table 1: OLS and 2SLS Estimates

Dependent Variable: Per Capita GDP Growth	1		2		3		4			
	Extended DKT		Extended DKT		Extended DKT		Extended DKT			
	ols		ols		ols		2sls (2nd Stage)		AP p-values	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	X^2	F
InitialGDP	**-0.011*****	0.003	**-0.012*****	0.003	**-0.015*****	0.004	**-0.020*****	0.005	0.000	0.000
GovernanceQuality	**0.005***	0.003	**0.006***	0.003	**0.010*****	0.003	**0.013*****	0.003		
Investment	**0.010*****	0.003	**0.010*****	0.003	**0.011*****	0.003	0.006	0.004	0.000	0.000
GovernmentExpenditures	**-0.107*****	0.026	**-0.108*****	0.026	**-0.112*****	0.026	**-0.133*****	0.039	0.000	0.000
PopulationGrowth	**-0.042*****	0.012	**-0.042*****	0.012	**-0.044*****	0.012	**-0.058****	0.023	0.000	0.001
JewishFraction	**0.039*****	0.009	**0.040*****	0.009	**0.035*****	0.009	**0.062*****	0.016	0.000	0.000
LegalOriginsUK	0.005	0.003	0.004	0.003	**0.007****	0.003	**0.008***	0.005		
LegalOriginsFrench	-0.002	0.003	-0.002	0.004	-0.002	0.004	-0.001	0.005		
ProtestantFraction	**-0.007***	0.004	**-0.008***	0.004	**-0.008****	0.004	**-0.010***	0.006	0.000	0.000
OrthodoxFraction	0.008	0.005	**0.010***	0.006	0.006	0.006	0.008	0.006	0.000	0.000
Inflation	**-0.000*****	0.000	**-0.000*****	0.000	**-0.000*****	0.000	**-0.000***	0.000	0.017	0.030
Fertility	**-0.003***	0.002	**-0.003***	0.001	-0.002	0.002	-0.003	0.002		
LatinAmerica	-0.001	0.005	0.001	0.005	-0.002	0.005	-0.005	0.007		
HinduFraction	-0.001	0.012	-0.003	0.013	**-0.024***	0.014	**-0.028***	0.017	0.000	0.000
LinguisticFractionalization	-0.008	0.005	-0.007	0.005	-0.002	0.006	-0.007	0.007		
EthnicFractionalization	-0.005	0.006	-0.006	0.006	-0.008	0.006	-0.004	0.007		
OtherReligionsFraction	-0.007	0.008	-0.007	0.008	-0.011	0.008	-0.017	0.015	0.000	0.000
ExecutiveConstraints	**-0.006***	0.004	**-0.006***	0.004	**-0.007***	0.004	-0.003	0.005	0.000	0.000
Openness	**0.007***	0.004	**0.007***	0.004	0.003	0.004	0.004	0.005	0.000	0.000
ExpropriationRisk	0.001	0.010	-0.001	0.011	-0.007	0.011	-0.005	0.011		
SubSaharanAfrica	-0.003	0.005	-0.003	0.005	-0.000	0.006	0.000	0.008		
LifeExpectancy	0.011	0.013	0.012	0.013	0.008	0.014	0.002	0.014		
EastAsia	0.005	0.004	0.004	0.005	-0.006	0.005	0.001	0.008		
EasternReligionFraction	0.005	0.006	0.005	0.006	**0.012***	0.006	0.001	0.009	0.000	0.000
LandTropicsPct	0.003	0.004	0.003	0.004	0.005	0.005	0.003	0.005		
MuslimFraction	0.000	0.004	0.001	0.004	-0.002	0.005	-0.006	0.007	0.000	0.000
Education	-0.001	0.001	-0.000	0.001	-0.001	0.001	-0.001	0.001	0.000	0.000
LandNearCoastPct	**-0.007***	0.004	**-0.007***	0.004	-0.006	0.004	**-0.009****	0.004		
Diversity			0.007	0.008	-0.002	0.009	-0.003	0.011	0.000	0.000
LowIncomeDummy					**-0.020****	0.010	-0.020	0.014		
LowerMedIncomeDummy					-0.005	0.009	0.001	0.012		
UpperMedIncomeDummy					-0.011	0.010	-0.020	0.013		
Diversity*LowIncome					**0.064*****	0.019	**0.065****	0.030	0.000	0.000
Diversity*LowerMedIncome					**0.026****	0.012	0.007	0.018	0.000	0.000
Diversity*UpperMedIncome					**0.037***	0.022	**0.059****	0.029	0.000	0.000
Composite Effects										
Diversity [LowIncome]♠					**0.062*****	0.019	**0.062*****	0.032		
Diversity [LowerMedIncome]♠					**0.024****	0.011	0.004	0.017		
Diversity [UpperMedIncome]♠					0.035	0.023	**0.056***	0.029		
R-squared	0.409		0.410		0.434		0.403			
Sargan test p-value							0.000			
Observations	589		589		589		589			

♠ Composite coefficient comprised of Diversity and Diversity*CountryIncome interaction, standard errors calculated using the Delta Method.

Table 2: IVBMA Estimates

Dependent Variable: Per Capita GDP Growth	5			6			7		
	Extended DKT **IVBMA**			Extended DKT **IVBMA**			Extended DKT **IVBMA**		
	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
InitialGDP	**1.00**	-0.016	0.002	**1.00**	-0.016	0.002	**1.00**	-0.022	0.002
GovernanceQuality	**1.00**	0.010	0.002	**1.00**	0.011	0.002	**1.00**	0.011	0.002
Investment	**0.99**	0.012	0.003	**0.99**	0.013	0.003	**1.00**	0.014	0.003
GovernmentExpenditures	**0.75**	-0.075	0.028	**0.85**	-0.078	0.032	**0.99**	-0.112	0.027
PopulationGrowth	**0.87**	-0.045	0.013	**0.84**	-0.042	0.014	**1.00**	-0.062	0.013
JewishFraction	0.23	0.027	0.016	0.27	0.031	0.020	**0.98**	0.047	0.012
LegalOriginsUK	0.13	0.000	0.004	0.12	0.000	0.005	**0.54**	0.006	0.002
LegalOriginsFrench	**0.65**	-0.006	0.002	**0.71**	-0.006	0.002	0.29	-0.005	0.003
ProtestantFraction	**0.92**	-0.016	0.005	**0.91**	-0.016	0.005	0.21	-0.009	0.005
OrthodoxFraction	0.09	0.008	0.006	0.11	0.010	0.006	0.19	0.011	0.006
Inflation	**0.59**	0.000	0.000	0.33	0.000	0.000	0.19	0.000	0.000
Fertility	0.35	-0.002	0.002	0.34	-0.003	0.001	0.12	-0.001	0.001
LatinAmerica	0.06	-0.002	0.003	0.09	-0.002	0.004	0.13	-0.004	0.003
HinduFraction	0.03	-0.004	0.009	0.06	-0.006	0.009	0.10	-0.016	0.011
LinguisticFractionalization	0.06	-0.004	0.005	0.10	-0.005	0.006	0.10	-0.006	0.004
EthnicFractionalization	0.07	-0.004	0.006	0.07	-0.003	0.005	0.10	-0.004	0.005
OtherReligionsFraction	0.15	0.010	0.012	0.15	0.012	0.011	0.07	-0.005	0.007
ExecutiveConstraints	0.04	0.000	0.004	0.05	0.000	0.005	0.08	-0.003	0.004
Openness	0.04	0.002	0.004	0.08	0.005	0.004	0.10	0.004	0.003
ExpropriationRisk	0.06	-0.001	0.008	0.07	0.000	0.009	0.05	0.002	0.007
SubSaharanAfrica	**0.91**	-0.011	0.004	**0.92**	-0.011	0.004	0.06	-0.002	0.004
LifeExpectancy	0.11	-0.003	0.008	0.11	-0.003	0.007	0.03	0.000	0.005
EastAsia	0.12	0.004	0.004	0.07	0.004	0.003	0.05	0.001	0.004
EasternReligionFraction	0.07	0.007	0.007	0.05	0.005	0.007	0.05	0.005	0.006
LandTropicsPct	0.07	0.001	0.003	0.05	0.001	0.003	0.04	0.002	0.003
MuslimFraction	0.06	0.003	0.004	0.06	0.003	0.004	0.04	0.002	0.003
Education	0.06	0.000	0.001	0.04	0.000	0.001	0.04	0.000	0.001
LandNearCoastPct	0.06	-0.002	0.003	0.03	-0.001	0.003	0.04	0.000	0.003
Diversity				0.12	0.008	0.007	0.09	0.006	0.007
LowIncomeDummy							**1.00**	-0.026	0.005
LowerMedIncomeDummy							0.07	-0.001	0.005
UpperMedIncomeDummy							0.06	-0.003	0.007
Diversity*LowIncome							**1.00**	0.069	0.016
Diversity*LowerMedIncome							0.05	0.003	0.009
Diversity*UpperMedIncome							0.08	0.012	0.016
Composite Effects									
Diversity [LowIncome]♠							**1.00**	0.070	0.016
Diversity [LowerMedIncome]♠							0.14	0.005	0.008
Diversity [UpperMedIncome]♠							0.16	0.010	0.013
Sargan test p-value		0.999			0.999			0.999	
Observations		589			589			589	

♠ Composite coefficient reported, based on the joint posterior distribution of Diversity and Diversity*CountryIncome interaction. Since the PIP is not defined for the composite, we report the percentage of the joint posterior distribution of Diversity and Diversity*CountryIncome that is non-zero.

Table 3: IVBMA Robustness Regressions – Alternative Diversity Measures

Dependent Variable: Per Capita GDP Growth	8 Clustered			9 Gini			10 Herfindahl			11 Between-Theil			12 Within-Theil			13 Theil		
	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
InitialGDP	**1.00**	-0.022	0.003	**1.00**	-0.021	0.003	**1.00**	-0.021	0.002	**1.00**	-0.023	0.002	**1.00**	-0.022	0.003	**1.00**	-0.022	0.002
GovernanceQuality	**1.00**	0.012	0.002	**1.00**	0.011	0.002	**1.00**	0.013	0.002	**1.00**	0.013	0.002	**1.00**	0.011	0.002	**1.00**	0.011	0.002
Investment	**1.00**	0.014	0.003	**1.00**	0.014	0.003	**1.00**	0.015	0.003	**1.00**	0.013	0.003	**1.00**	0.015	0.003	**1.00**	0.015	0.003
GovernmentExpenditures	**0.97**	-0.105	0.028	**0.99**	-0.125	0.030	**0.97**	-0.102	0.030	**0.99**	-0.106	0.026	**0.99**	-0.119	0.029	**0.97**	-0.107	0.027
PopulationGrowth	**0.96**	-0.058	0.014	**0.99**	-0.061	0.014	**1.00**	-0.060	0.013	**1.00**	-0.054	0.012	**1.00**	-0.064	0.014	**0.98**	-0.060	0.013
JewishFraction	**0.93**	0.044	0.013	**0.97**	0.047	0.013	**0.89**	0.045	0.013	**0.99**	0.046	0.012	**0.98**	0.050	0.014	**0.95**	0.045	0.012
LegalOriginsUK	0.42	0.005	0.002	0.48	0.006	0.002	0.15	0.004	0.003	0.18	0.004	0.002	0.25	0.005	0.002	0.36	0.005	0.002
LegalOriginsFrench	0.29	-0.006	0.003	0.31	-0.005	0.003	0.39	-0.005	0.002	0.26	-0.004	0.002	0.34	-0.006	0.003	0.21	-0.005	0.003
ProtestantFraction	0.28	-0.011	0.005	0.26	-0.010	0.005	**0.54**	-0.013	0.006	0.19	-0.009	0.005	0.31	-0.011	0.005	0.24	-0.010	0.005
OrthodoxFraction	0.24	0.012	0.006	0.12	0.010	0.006	0.20	0.011	0.006	0.27	0.012	0.006	0.18	0.009	0.006	0.16	0.011	0.006
Inflation	0.23	0.000	0.000	0.41	0.000	0.000	0.31	0.000	0.000	0.12	0.000	0.000	0.43	0.000	0.000	**0.65**	0.000	0.000
Fertility	0.19	-0.002	0.001	0.22	-0.002	0.001	0.14	-0.001	0.001	0.09	0.000	0.001	0.26	-0.002	0.001	0.15	-0.001	0.001
LatinAmerica	0.11	-0.004	0.003	0.23	-0.006	0.003	0.08	-0.003	0.003	0.17	-0.005	0.003	0.17	-0.006	0.004	0.04	-0.003	0.003
HinduFraction	0.09	-0.013	0.011	0.05	0.007	0.011	0.07	-0.003	0.011	0.07	-0.009	0.010	0.03	0.007	0.010	0.03	-0.003	0.010
LinguisticFractionalization	0.13	-0.006	0.004	0.11	-0.006	0.005	0.10	-0.005	0.004	0.10	-0.006	0.004	0.11	-0.006	0.005	0.11	-0.005	0.004
EthnicFractionalization	0.09	-0.005	0.005	0.07	-0.005	0.005	0.06	-0.003	0.005	0.10	-0.005	0.005	0.07	-0.005	0.005	0.07	-0.003	0.005
OtherReligionsFraction	0.09	-0.005	0.009	0.13	-0.009	0.009	0.08	-0.004	0.008	0.08	-0.005	0.007	0.09	-0.009	0.008	0.07	-0.005	0.008
ExecutiveConstraints	0.06	-0.003	0.004	0.06	-0.002	0.004	0.06	-0.001	0.004	0.07	-0.004	0.004	0.08	-0.001	0.004	0.06	-0.002	0.004
Openness	0.08	0.005	0.003	0.09	0.005	0.004	0.12	0.005	0.004	0.04	0.002	0.004	0.13	0.005	0.004	0.07	0.003	0.003
ExpropriationRisk	0.05	0.002	0.008	0.06	0.005	0.007	0.08	0.004	0.007	0.06	0.001	0.007	0.07	0.005	0.008	0.05	0.003	0.007
SubSaharanAfrica	0.09	-0.004	0.005	**0.57**	-0.009	0.003	0.13	-0.005	0.004	0.05	-0.002	0.004	0.31	-0.007	0.004	0.18	-0.006	0.004
LifeExpectancy	0.07	-0.002	0.005	0.04	-0.001	0.006	0.07	-0.001	0.006	0.07	-0.001	0.007	0.10	-0.002	0.005	0.06	-0.003	0.006
EastAsia	0.04	0.000	0.004	0.11	0.005	0.004	0.08	0.004	0.003	0.06	0.003	0.004	0.11	0.004	0.003	0.07	0.004	0.003
EasternReligionFraction	0.08	0.006	0.006	0.12	0.009	0.006	0.07	0.005	0.006	0.12	0.009	0.006	0.08	0.006	0.007	0.06	0.005	0.006
LandTropicsPct	0.06	0.002	0.003	0.04	0.001	0.003	0.06	-0.001	0.003	0.05	0.003	0.003	0.03	-0.001	0.003	0.03	0.001	0.003
MuslimFraction	0.05	0.001	0.004	0.05	0.001	0.004	0.04	0.000	0.003	0.06	0.000	0.004	0.06	0.000	0.004	0.05	0.001	0.004
Education	0.06	0.000	0.001	0.06	0.000	0.001	0.08	0.000	0.001	0.03	0.000	0.001	0.05	-0.001	0.001	0.04	0.000	0.001
LandNearCoastPct	0.05	0.001	0.003	0.05	-0.002	0.003	0.06	-0.003	0.003	0.06	0.002	0.003	0.03	-0.002	0.003	0.04	-0.001	0.003
Diversity	0.19	0.010	0.007	0.10	-0.027	0.030	0.22	0.002	0.040	0.31	-0.050	0.038	0.14	0.017	0.020	0.08	-0.011	0.013
LowIncomeDummy	**1.00**	-0.027	0.005	**0.68**	0.035	0.042	0.21	-0.009	0.006	0.11	0.002	0.007	0.34	0.007	0.018	**0.51**	0.018	0.011
LowerMedIncomeDummy	0.11	0.000	0.005	0.13	0.015	0.025	0.09	0.004	0.004	0.08	-0.001	0.004	0.10	-0.004	0.012	0.06	0.000	0.006
UpperMedIncomeDummy	0.07	-0.001	0.008	0.08	-0.008	0.030	0.04	0.002	0.005	0.06	0.002	0.004	0.10	-0.022	0.022	0.04	0.001	0.007
Diversity*LowIncome	**0.98**	0.047	0.012	**0.83**	-0.047	0.039	**0.88**	-0.049	0.018	**0.93**	-0.094	0.022	**0.85**	-0.044	0.024	**0.99**	-0.041	0.017
Diversity*LowerMedIncome	0.04	0.005	0.007	0.14	-0.012	0.026	0.16	0.022	0.041	0.19	0.015	0.051	0.13	0.017	0.028	0.09	-0.005	0.011
Diversity*UpperMedIncome	0.05	0.010	0.013	0.08	0.011	0.033	0.04	-0.036	0.143	0.06	-0.057	0.064	0.11	0.074	0.070	0.04	-0.001	0.021
Composite Effects																		
Diversity [LowIncome]♠	**0.99**	0.048	0.012	**0.86**	-0.049	0.039	**0.94**	-0.045	0.014	**1.00**	-0.102	0.019	**0.87**	-0.040	0.024	**0.99**	-0.042	0.017
Diversity [LowerMedIncome]♠	0.23	0.009	0.007	0.23	-0.020	0.031	0.31	0.013	0.029	0.40	-0.032	0.021	0.26	0.018	0.024	0.17	-0.008	0.012
Diversity [UpperMedIncome]♠	0.24	0.010	0.009	0.16	-0.012	0.037	0.24	-0.004	0.068	0.35	-0.053	0.044	0.25	0.043	0.056	0.12	-0.008	0.016
Sargan test p-value		0.999			0.999			0.999			0.999			0.999			0.999	
Observations		589			589			589			589			589			589	

♠ Composite coefficient reported, based on the joint posterior distribution of Diversity and Diversity*CountryIncome interaction. Since the PIP is not defined for the composite, we report the percentage of the joint posterior distribution of Diversity and Diversity*CountryIncome that is non-zero.

Table 4: IVBMA Robustness Regressions – Extensive versus Intensive Diversity Margins

Dependent Variable: Per Capita GDP Growth	14			15		
	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
InitialGDP	**1.00**	-0.022	0.003	**1.00**	-0.022	0.003
GovernanceQuality	**1.00**	0.012	0.002	**1.00**	0.012	0.002
Investment	**0.65**	0.010	0.004	**0.97**	0.013	0.003
GovernmentExpenditures	**0.98**	-0.113	0.030	**0.99**	-0.107	0.027
PopulationGrowth	**0.91**	-0.052	0.019	**0.98**	-0.059	0.015
JewishFraction	**0.93**	0.046	0.013	**0.98**	0.045	0.012
LegalOriginsUK	0.43	0.006	0.003	**0.52**	0.006	0.002
LegalOriginsFrench	0.38	-0.006	0.003	0.23	-0.005	0.003
ProtestantFraction	0.31	-0.012	0.005	0.18	-0.009	0.005
OrthodoxFraction	0.13	0.010	0.006	0.30	0.013	0.006
Inflation	**0.66**	0.000	0.000	0.31	0.000	0.000
Fertility	**0.77**	-0.004	0.001	0.25	-0.002	0.001
LatinAmerica	0.15	-0.004	0.004	0.12	-0.005	0.003
HinduFraction	0.06	-0.006	0.012	0.11	-0.016	0.011
LinguisticFractionalization	0.13	-0.006	0.005	0.17	-0.006	0.004
EthnicFractionalization	0.05	-0.004	0.005	0.09	-0.005	0.005
OtherReligionsFraction	0.22	-0.014	0.008	0.07	-0.007	0.008
ExecutiveConstraints	0.07	-0.002	0.005	0.09	-0.003	0.004
Openness	0.07	0.003	0.004	0.08	0.004	0.003
ExpropriationRisk	0.04	0.001	0.008	0.05	0.001	0.008
SubSaharanAfrica	0.11	-0.005	0.004	0.07	-0.002	0.004
LifeExpectancy	0.08	0.000	0.006	0.06	0.000	0.004
EastAsia	0.04	0.001	0.004	0.04	0.001	0.004
EasternReligionFraction	0.07	0.004	0.007	0.07	0.006	0.007
LandTropicsPct	0.03	0.001	0.004	0.06	0.000	0.003
MuslimFraction	0.05	0.000	0.004	0.03	0.002	0.003
Education	0.06	0.000	0.001	0.04	0.000	0.001
LandNearCoastPct	0.07	0.003	0.003	0.07	0.002	0.003
Diversity				0.14	0.006	0.008
IntensiveMarginDiversity	0.05	0.018	0.039	0.06	0.028	0.042
LowIncomeDummy	**0.99**	-0.034	0.007	**1.00**	-0.026	0.006
LowerMedIncomeDummy	0.10	0.000	0.007	0.07	0.001	0.005
UpperMedIncomeDummy	0.10	-0.006	0.010	0.16	-0.009	0.009
Diversity*LowIncome				**0.92**	0.072	0.018
Diversity*LowerMedIncome				0.07	0.006	0.010
Diversity*UpperMedIncome				0.08	0.005	0.025
Int.Marg.Diversity*LowIncome	**0.98**	1.355	0.403	0.17	0.584	0.848
Int.Marg.Diversity*LowerMedIncome	0.12	0.266	0.220	0.07	0.098	0.220
Int.Marg.Diversity*UpperMedIncome	0.14	0.605	0.499	0.16	0.699	0.506
Composite Effect						
Diversity [LowIncome]♠				**0.94**	0.071	0.020
Diversity [LowerMedIncome]♠				0.20	0.007	0.009
Diversity [UpperMedIncome]♠				0.20	0.006	0.017
Int.Marg.Diversity [LowIncome]♠	**0.98**	1.354	0.406	0.21	0.470	0.787
Int.Marg.Diversity [LowerMedIncome]♠	0.16	0.199	0.219	0.13	0.066	0.166
Int.Marg.Diversity [UpperMedIncome]♠	0.18	0.472	0.504	0.21	0.522	0.525
Sargan test p-value		0.999			0.999	
Observations		589			589	

♠ Composite coefficient reported, based on the joint posterior distribution of Diversity (IntensiveMarginDiversity) and Diversity*CountryIncome (IntensiveMarginDiversity*CountryIncome) interaction. Since the PIP is not defined for the composite, we report the percentage of the joint posterior distribution of Diversity and Diversity*CountryIncome (IntensiveMarginDiversity and IntensiveMarginDiversity*CountryIncome) that is non-zero.

Table 5: IVBMA Robustness Regressions – Additional Control Variables

Dependent Variable: Per Capita GDP Growth	16			17			18			19		
	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
InitialGDP	**1.00**	-0.021	0.003	**1.00**	-0.020	0.003	**1.00**	-0.020	0.003	**1.00**	-0.022	0.003
GovernanceQuality	**1.00**	0.012	0.002	**1.00**	0.010	0.002	**0.76**	0.008	0.003	**1.00**	0.013	0.003
Investment	**0.99**	0.013	0.003	**0.99**	0.012	0.003	**0.95**	0.013	0.004	**1.00**	0.015	0.003
GovernmentExpenditures	**0.89**	-0.109	0.028	**0.89**	-0.093	0.028	**0.86**	-0.103	0.033	**1.00**	-0.132	0.029
PopulationGrowth	**0.95**	-0.056	0.014	**0.96**	-0.054	0.015	**0.97**	-0.072	0.019	**1.00**	-0.053	0.014
JewishFraction	**0.86**	0.046	0.012	**0.86**	0.043	0.012	**0.66**	0.047	0.016	**0.98**	0.051	0.013
LegalOriginsUK	0.34	0.005	0.002	0.42	0.005	0.003	0.34	0.009	0.004	0.43	0.006	0.002
LegalOriginsFrench	0.40	-0.005	0.002	0.47	-0.006	0.003	**0.75**	-0.010	0.004	0.36	-0.005	0.002
ProtestantFraction	0.35	-0.010	0.005	0.37	-0.011	0.005	0.44	-0.017	0.008	0.11	-0.008	0.006
OrthodoxFraction	0.19	0.012	0.006	0.15	0.010	0.006	0.20	0.015	0.009	0.13	0.011	0.006
Inflation	0.33	0.000	0.000	0.13	0.000	0.000	0.09	0.000	0.000	0.15	0.000	0.000
Fertility	0.25	-0.002	0.001	0.29	-0.002	0.002	0.20	-0.003	0.002	0.07	0.000	0.001
LatinAmerica	0.13	-0.005	0.003	0.06	-0.001	0.004	0.09	-0.004	0.005	0.22	-0.006	0.003
HinduFraction	0.11	-0.014	0.011	0.15	-0.019	0.011	0.35	-0.027	0.012	0.12	-0.010	0.012
LinguisticFractionalization	0.13	-0.007	0.004	0.19	-0.007	0.004	0.16	-0.009	0.005	0.18	-0.008	0.004
EthnicFractionalization	0.08	-0.005	0.005	0.11	-0.006	0.005	0.11	-0.006	0.006	0.08	-0.007	0.005
OtherReligionsFraction	0.09	-0.004	0.007	0.08	-0.001	0.008	0.07	0.004	0.011	0.06	-0.006	0.008
ExecutiveConstraints	0.08	-0.003	0.004	0.12	-0.005	0.004	0.09	-0.005	0.006	0.08	-0.003	0.005
Openness	0.07	0.004	0.004	0.07	0.003	0.004	0.07	-0.001	0.004	0.04	-0.001	0.004
ExpropriationRisk	0.05	0.001	0.008	0.09	-0.002	0.008	0.07	0.000	0.009	0.06	0.001	0.007
SubSaharanAfrica	0.07	-0.003	0.004	0.09	-0.004	0.004	0.13	-0.004	0.006	0.10	-0.005	0.004
LifeExpectancy	0.06	0.001	0.007	0.09	-0.003	0.006	0.13	-0.003	0.006	0.08	-0.002	0.003
EastAsia	0.07	0.000	0.004	0.06	0.004	0.004	0.07	0.000	0.007	0.03	-0.003	0.005
EasternReligionFraction	0.09	0.005	0.007	0.16	0.011	0.006	0.23	0.014	0.009	0.08	0.004	0.007
LandTropicsPct	0.04	0.002	0.003	0.10	0.003	0.003	0.13	0.005	0.004	0.05	0.001	0.004
MuslimFraction	0.06	0.000	0.004	0.02	0.000	0.004	0.07	0.004	0.004	0.06	0.003	0.004
Education	0.05	0.000	0.001	0.06	0.000	0.001	0.08	-0.001	0.001	0.09	-0.001	0.001
LandNearCoastPct	0.03	0.001	0.003	0.06	0.002	0.003	0.04	0.003	0.004	0.08	0.002	0.003
Diversity	0.08	0.007	0.007	0.10	0.005	0.007	0.15	0.012	0.010	0.11	0.007	0.008
LowIncomeDummy	**1.00**	-0.025	0.005	**1.00**	-0.023	0.005	**0.99**	-0.025	0.006	**1.00**	-0.025	0.005
LowerMedIncomeDummy	0.08	0.000	0.005	0.08	0.001	0.004	0.15	-0.005	0.006	0.09	-0.003	0.004
UpperMedIncomeDummy	0.05	-0.001	0.007	0.02	-0.001	0.007	0.07	0.004	0.006	0.04	-0.002	0.007
Diversity*LowIncome	**1.00**	0.067	0.016	**1.00**	0.073	0.017	**0.97**	0.067	0.022	**0.99**	0.065	0.016
Diversity*LowerMedIncome	0.03	0.005	0.009	0.03	0.003	0.008	0.08	-0.003	0.013	0.06	-0.001	0.009
Diversity*UpperMedIncome	0.10	0.015	0.018	0.06	0.009	0.013	0.10	0.015	0.012	0.05	0.012	0.016
WTO	0.04	0.002	0.003	0.04	0.002	0.003	0.05	-0.001	0.003			
PTA	0.05	0.000	0.000	0.04	0.000	0.000	0.11	0.000	0.000			
PrimaryX	0.07	0.002	0.004	0.08	0.006	0.004	0.08	0.005	0.006			
GDPVolatility	0.06	-0.031	0.034	0.04	0.002	0.037	0.06	0.010	0.045			
REER				0.07	0.002	0.002	0.05	0.002	0.004			
FXVolatility				**0.99**	-0.004	0.001	**0.76**	-0.003	0.001			
TOT							0.05	0.002	0.003			
TOTVolatility							0.07	-0.001	0.001			
FDIOutFlow										0.08	-0.001	0.001
FDIInFlow										**0.95**	0.001	0.000
Composite Effects												
Diversity [LowIncome]♠	**1.00**	0.069	0.017	**1.00**	0.073	0.017	**0.99**	0.068	0.023	**0.99**	0.066	0.016
Diversity [LowerMedIncome]♠	0.11	0.005	0.008	0.13	0.004	0.008	0.22	0.007	0.013	0.15	0.005	0.009
Diversity [UpperMedIncome]♠	0.17	0.009	0.012	0.16	0.006	0.010	0.24	0.014	0.011	0.15	0.009	0.012
Sargan test p-value		0.999			0.999			0.999			0.999	
Observations		589			584			407			541	

♠ Composite coefficient reported, based on the joint posterior distribution of Diversity and Diversity*CountryIncome interaction. Since the PIP is not defined for the composite, we report the percentage of the joint posterior distribution of Diversity and Diversity*CountryIncome that is non-zero.

Table 6: IVBMA Robustness Regressions – Diversity Catalysts

Dependent Variable: Per Capita GDP Growth	20 Diversity via Trade Openness?			21 Diversity via Primary Exports?		
	PIP	Post. Mean	Post. SD	PIP	Post. Mean	Post. SD
Initial GDP	**1.00**	-0.020	0.002	**1.00**	-0.021	0.003
GovernanceQuality	**1.00**	0.012	0.002	**1.00**	0.012	0.002
Investment	**0.98**	0.012	0.003	**0.97**	0.012	0.003
GovernmentExpenditures	**0.95**	-0.105	0.028	**1.00**	-0.121	0.028
PopulationGrowth	**0.88**	-0.048	0.015	**0.94**	-0.055	0.016
JewishFraction	**0.90**	0.044	0.013	**0.99**	0.050	0.012
LegalOriginsUK	0.28	0.005	0.003	0.46	0.006	0.002
LegalOriginsFrench	0.46	-0.006	0.002	0.24	-0.005	0.003
ProtestantFraction	0.28	-0.010	0.005	0.13	-0.008	0.005
OrthodoxFraction	0.40	0.013	0.006	0.17	0.011	0.006
Inflation	0.31	0.000	0.000	0.35	0.000	0.000
Fertility	0.32	-0.002	0.001	0.28	-0.002	0.001
LatinAmerica	0.08	-0.003	0.003	0.30	-0.007	0.004
HinduFraction	0.12	-0.016	0.011	0.06	-0.014	0.011
LinguisticFractionalization	0.11	-0.006	0.004	0.39	-0.011	0.005
EthnicFractionalization	0.14	-0.007	0.005	0.16	-0.007	0.006
OtherReligionsFraction	0.04	-0.004	0.007	0.13	-0.010	0.008
ExecutiveConstraints	0.09	-0.004	0.004	0.06	-0.001	0.004
ExpropriationRisk	0.06	0.004	0.007	0.04	0.001	0.008
SubSaharanAfrica	0.09	-0.003	0.004	0.04	-0.002	0.004
LifeExpectancy	0.07	-0.005	0.009	0.06	-0.003	0.007
EastAsia	0.03	0.000	0.004	0.07	-0.004	0.005
EasternReligionFraction	0.07	0.007	0.007	0.10	0.009	0.008
LandTropicsPct	0.07	0.002	0.003	0.07	-0.001	0.003
MuslimFraction	0.03	0.000	0.003	0.08	0.002	0.005
Education	0.05	0.000	0.001	0.08	0.000	0.001
LandNearCoastPct	0.03	0.001	0.003	0.06	-0.002	0.003
Diversity	0.10	0.005	0.007	0.14	0.006	0.008
LowIncomeDummy	**1.00**	-0.025	0.005	**1.00**	-0.028	0.007
LowerMedIncomeDummy	0.10	-0.003	0.005	0.09	-0.001	0.005
UpperMedIncomeDummy	0.06	0.000	0.005	0.09	-0.007	0.011
Diversity*LowIncome	**1.00**	0.074	0.015	0.40	0.068	0.038
Diversity*LowerMedIncome	0.04	-0.001	0.010	0.06	0.002	0.012
Diversity*UpperMedIncome	0.05	0.010	0.013	0.08	0.013	0.022
Openness	0.07	0.005	0.005	0.09	0.005	0.003
Openness*Diversity	0.07	-0.002	0.012			
Openness*LowIncome	0.08	0.010	0.013			
Openness*LowerMedIncome	0.04	-0.002	0.006			
Openness*UpperMedIncome	0.05	0.015	0.021			
Openness*Low*Diversity	0.08	0.060	0.058			
Openness*LowerMed*Diversity	0.05	-0.011	0.014			
Openness*UpperMed*Diversity	0.07	-0.023	0.051			
PrimaryX				0.05	0.000	0.005
PrimaryX*Diversity				0.08	0.015	0.016
PrimaryX*LowIncome				0.19	0.010	0.013
PrimaryX*LowerMedIncome				0.06	-0.004	0.006
PrimaryX*UpperMedIncome				0.07	-0.006	0.019
PrimaryX*Low*Diversity				**0.74**	0.154	0.071
PrimaryX*LowerMed*Diversity				0.09	0.022	0.032
PrimaryX*UpperMed*Diversity				0.10	0.062	0.061
Composite Effects						
Diversity [LowIncome, Openness]♠	**1.00**	0.075	0.015			
Diversity [LowerMedIncome, Openness]♠	0.24	0.002	0.008			
Diversity [UpperMedIncome, Openness]♠	0.26	0.005	0.009			
Diversity [LowIncome, PrimaryX]♠				**1.00**	0.054	0.043
Diversity [LowerMedIncome, PrimaryX,♠				0.32	0.005	0.009
Diversity [UpperMedIncome, PrimaryX]♠				0.35	0.007	0.013
Sargan test p-value		0.999			0.999	
Observations		589			589	

♠ Composite coefficient reported, based on the joint posterior distribution of Diversity, Diversity*Catalyst, Diversity*CountryIncome and Diversity*CountryIncome*Catalyst interactions. Since the PIP is not defined for the composite, we report the percentage of the joint posterior distribution of Diversity, Diversity*Catalyst, Diversity*CountryIncome and Diversity*CountryIncome*Catalyst that is non-zero.

Data Appendix

Variable Name	Mean	StDev	Min	Max	Definition	Source
Between Theil	0.103	0.100	0.000	0.550	Average Between Theil measure of export diversifications, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
EastAsia	0.105	0.307	0.000	1.000	Dummy variable for East Asia.	World Bank
EasternReligionFraction	0.055	0.187	0.000	0.967	Eastern Religion share in 1970, 1980, 1990, 2000 as fraction of the population who expressed adherence to some religion and corresponding share in 1900.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
Education	-3.769	1.864	-11.555	-0.488	Logarithm of the average percentage of a country's working age population that attended secondary school times the completion rate of secondary school for all periods.	Barro and Lee dataset
Diversity	0.305	0.258	0.008	0.904	Average Hummels-Klenow extensive margin measure of a country's exports, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
EthnicFractionalization	0.400	0.261	0.002	0.930	Measures the degree of tension within a country attributable to racial, nationality, or language divisions.	Alesina (2003)
ExecutiveConstraints	0.633	0.352	0.000	1.000	A measure of the extent of institutionalized constraints on the decision making powers of chief executives. This variable ranges from one to seven where higher values equal a greater extent of institutionalized constraints on the power of chief executives. This variable is calculated as per period average. The variable was transformed first using (x-1)/6.	Henderson, Papageorgiou, Parmeter (EJ 2012) and Polity IV Project
ExpropriationRisk	0.718	0.206	0.160	1.000	Risk of "outright confiscation and forced nationalization" of property. Rescaled, from 0 to 1, with a higher score indicating less risk of expropriation.	Henderson, Papageorgiou, Parmeter (EJ 2012) and Durlauf, Kourtellos, Tan (EJ 2008).
Fertility	3.575	2.104	0.073	8.072	Logarithm of the total fertility rate in initial years of 5-year periods.	Henderson, Papageorgiou, Parmeter (EJ 2012) and World Bank.
FDIInFlow	1.922	2.369	-3.433	19.053	Inward FDI flows as percent of GDP	UNCTAD
FDIOutFlow	0.748	1.729	-0.377	16.782	Outward FDI flows as percent of GDP	UNCTAD
g	0.020	0.025	-0.070	0.109	Average per capita GDP growth rate.	Henderson, Papageorgiou, Parmeter (EJ 2011 - PWT 6.2), PWT 7.1.
Gini	0.942	0.058	0.699	0.999	Average Gini measure of export diversification, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
GovernanceQuality	0.338	0.912	-1.870	1.930	Average Composite Governance index. It is calculated as the average of six variables: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.	World Bank
GovernmentExpenditures	0.149	0.054	0.041	0.387	Average ratio of government consumption to GDP.	World Bank.
Herfindahl	0.125	0.154	0.002	0.859	Average Herfindahl measure of export diversification, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
HinduFraction	0.019	0.100	0.000	0.820	Hindu share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
Inflation	13.067	23.325	-3.079	270.651	The average consumer price inflation rate.	Henderson, Papageorgiou, Parmeter (EJ 2012) and World Bank.

Variable Name	Mean	StDev	Min	Max	Definition	Source
InitialGDP	8.539	1.090	6.177	10.806	Logarithm of initial per capita GDP in each period.	Henderson, Papageorgiou, Parmeter (EJ 2011 - PWT 6.2), PWT 7.1.
IntensiveMarginDiversity	0.023	0.033	0.000	0.267	Average Hummels-Klenow intensive margin measure of a country's exports, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
Investment	2.746	0.538	1.097	4.515	Average ratio of investment to GDP.	Henderson, Papageorgiou, Parmeter (EJ 2011), PWT 7.1.
JewishFraction	0.015	0.103	0.000	0.896	Jewish share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LandNearCoastPct	0.504	0.347	0.000	1.000	Percentage of a country's land area within 100km of an ice-free coast.	Henderson, Papageorgiou, Parmeter (EJ 2011).
LandTropicsPct	0.308	0.395	0.000	1.000	Percentage of land area classified as tropical and subtropical via the in Koeppen-Geiger system.	Henderson, Papageorgiou, Parmeter (EJ 2011).
LatinAmerica	0.233	0.423	0.000	1.000	Dummy variable for Latin America and the Caribbean.	World Bank
LegalOriginsFrench	0.472	0.500	0.000	1.000	Dummy variable that takes value 1 if a country legal system is based on French legal code.	Durlauf, Kourtellos, Tan (EJ 2008).
LegalOriginsUK	0.345	0.476	0.000	1.000	Dummy variable that takes value 1 if a country legal system is based on British legal code.	Durlauf, Kourtellos, Tan (EJ 2008).
LifeExpectancy	0.205	0.497	0.012	2.253	Reciprocal of life expectancy at age 1 in initial years of 5-year periods.	Henderson, Papageorgiou, Parmeter (EJ 2012) and World Bank.
LinguisticFractionalization	0.354	0.304	0.000	0.923	Measure of linguistic fractionalization based on data describing shares of languages spoken as "mother tongues".	Henderson, Papageorgiou, Parmeter (EJ 2012) and Alesina (2003).
LowerMedIncomeDummy	0.399	0.490	0.000	1.000	Dummy variable taking value one for lower medium income dummies using 1988 World Bank definition.	World Bank
LowIncomeDummy	0.219	0.414	0.000	1.000	Dummy variable taking value one for low income dummies using 1988 World Bank definition.	World Bank
MuslimFraction	0.191	0.330	0.000	0.995	Muslim share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
PTA	10.131	10.687	0.000	56.000	Number of economic integration agreements at the beginning of each period.	NSF-Kellogg Institute EIA database.
Openness	-0.035	0.303	-0.505	1.497	Average ratio exports plus imports to GDP, filtered for the relation of this ratio to the logs of population and area.	Openness, GDP, population and area data from PWT 7.1 and World Bank.
OrthodoxFraction	0.037	0.157	0.000	0.972	Orthodox share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
OtherReligionsFraction	0.109	0.182	-0.560	0.904	Other Religion share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
GDPVolatility	0.033	0.025	0.003	0.244	Standard deviation of per capita GDP growth rates during each period.	Authors' own calculations, growth rate data: Henderson, Papageorgiou, Parmeter (EJ 2011 - PWT 6.2), PWT 7.1.
PopulationGrowth	-2.718	0.164	-3.201	-2.204	Logarithm of average population growth rate plus 0.05.	Henderson, Papageorgiou, Parmeter (EJ 2011), PWT 7.1.
PrimaryX	0.536	0.298	0.023	0.992	Average share of primary exports in total exports. Primary exports are defined as categories 0, 1, 2, 3, 4 and 68 in SITC (Rev.1) classification.	Authors' own calculations, trade data: Comtrade
ProtestantFraction	0.153	0.259	-0.007	1.460	Protestant share in 1970, 1980, 1990 and 2000 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
REER	4.698	0.455	3.306	9.567	Average real effective exchange rate.	Bruegel real effective exchange rate database

Variable Name	Mean	StDev	Min	Max	Definition	Source
FXVolatility	1.877	1.053	-0.722	10.074	Standard deviation of real effective exchange rate during each period.	Authors' own calculations, real exchange rate data: Bruegel real effective exchange rate database
SubSaharanAfrica	0.190	0.393	0.000	1.000	Dummy variable for Sub-Saharan Africa.	World Bank
TOT	0.084	0.356	-1.387	3.015	Terms-of-trade, calculated as the average ratio of export and import price indices.	Authors' own calculations, import and export price index data: World Bank, IMF
Total Theil	0.488	0.182	0.151	0.938	Average Total Theil measure of export diversification, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
TOTVolatility	-2.831	1.025	-5.821	1.837	Standard deviation of terms-of-trade during each period.	Authors' own calculations, import and export price index data: World Bank, IMF
UpperMedIncomeDummy	0.104	0.305	0.000	1.000	Dummy variable taking value one for upper medium income dummies using 1988 World Bank definition.	World Bank
Within Theil	0.387	0.123	0.143	0.739	Average Within Theil measure of export diversification, calculated using 4-digit SITC data (for 1960-1989) and 6-digit HS data (1990-2009).	Authors' own calculations, trade data: Feenstra et al. (2005), Comtrade
WTO	0.153	0.360	0.000	1.000	Dummy variable taking value one if country is WTO member at the beginning of a period.	WTO homepage
Instruments						
EasternReligionFraction1900	0.059	0.205	0.000	0.990	Eastern Religion share in 1900 as fraction of the population who expressed adherence to some religion and corresponding share in 1900.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
HinduFraction1900	0.024	0.110	0.000	0.816	Hindu share in 1900 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
JewishFraction1900	0.006	0.016	0.000	0.090	Jewish share in 1900 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagEducation	-4.113	2.029	-12.183	-1.024	One period lag of logarithm of the average percentage of a country's working age population that attended secondary school times the completion rate of secondary school for all periods.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagExecutiveConstraints	0.620	0.370	0.000	1.000	One period lag of constraints on executive measure.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagOpenness	-0.080	0.288	-0.569	1.364	One period lag of filtered openness ratio.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagGovernmentExpenditures	0.146	0.055	0.041	0.406	One period lag of average ratio of government consumption to GDP.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagInflation	14.265	23.749	-3.079	270.651	One period lag of average consumer price inflation rate.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagInitialGDP	8.432	1.053	5.805	10.445	One period lag of logarithm of initial per capita GDP in each period.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagInvestment	2.677	0.555	0.750	4.515	One period lag of average ratio of investment to GDP.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
LagPopulationGrowth	-2.706	0.165	-3.255	-2.204	One period lag of logarithm of average population growth rate plus 0.05.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
Landlocked	0.139	0 .346	0.000	1.000	Dummy variable taking value one if country is landlocked.	CEPII
lLand	12.635	1.578	9.131	16.048	Logarithm of land area.	CEPII
lPop	9.666	1.376	6.473	13.978	Logarithm of average population size.	PWT 7.1
MuslimFraction1900	0.163	0.301	0.000	0.964	Muslim share in 1900 as fraction of the	Durlauf, Kourtellos, Tan (EJ

					population who expressed adherence to some religion.	2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
Variable Name	**Mean**	**StDev**	**Min**	**Max**	**Definition**	**Source**
OrthodoxFraction1900	0.041	0.163	0.000	0.982	Orthodox share in 1900 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
OtherReligionsFraction1900	0.206	0.326	0.000	0.997	Other Religion share in 1900 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000
ProtestantFraction1900	0.150	0.301	0.000	0.999	Protestant share in 1900 as fraction of the population who expressed adherence to some religion.	Durlauf, Kourtellos, Tan (EJ 2008) for 1900, 1970, 1980, 1990 and McCleary for 2000